

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

## Application Review

**Issue Date:** Draft – April 6, 2020

**Region:** Mooresville Regional Office  
**County:** Gaston  
**NC Facility ID:** 3600224  
**Inspector's Name:** Jim Vanwormer  
**Date of Last Inspection:** 10/28/2019  
**Compliance Code:** 3 / Compliance - inspection

<b>Facility Data</b>  <b>Applicant (Facility's Name):</b> American & Efird LLC – Plants 05 & 15  <b>Facility Address:</b> American & Efird Plants LLC – Plants 05 & 15 20 American Street Mount Holly, NC 28120  <b>SIC:</b> 2284 / Thread Mills <b>NAICS:</b> 313113 / Thread Mills  <b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V						<b>Permit Applicability (this application only)</b>  <b>SIP:</b> 15A NCAC 02D .0503, .0515, .0516, .0521, .0524, .0900, .0909, .0958, .1111, .1806; 02Q .0512 02D .0951 and .0955 RACT (Avoidance) and 02Q .0513 <b>NSPS:</b> 40 CFR Part 60, Subpart VVV & IIII <b>NESHAP:</b> 40 CFR Part 63, Subparts DDDDD, OOOO & ZZZZ <b>PSD:</b> N/A <b>PSD Avoidance:</b> 02Q .0317 for 02D .0531 & .0902 <b>NC Toxics:</b> 02D .1100 <b>112(r):</b> N/A <b>Other:</b> Removal of 02D .1109 Case-by-Case MACT	
<b>Contact Data</b>						<b>Application Data</b>	
<b>Facility Contact</b>  Jimmy Summers VP - EHS & Sustainability (704) 951-2578 PO Box 507 Mount Holly, NC 28210		<b>Authorized Contact</b>  Jimmy Summers VP - EHS & Sustainability (704) 951-2578 PO Box 507 Mount Holly, NC 28210		<b>Technical Contact</b>  Jimmy Summers VP - EHS & Sustainability (704) 951-2578 PO Box 507 Mount Holly, NC 28210		<b>Application Numbers:</b> 3600224.19B (Application Nos. 3600224.17A, 3600224.18A, 3600224.18B and 3600224.19A were consolidated into this renewal) <b>Date Received:</b> 03/25/2019 (Renewal) <b>Application Type:</b> Renewal <b>Application Schedule:</b> TV-Renewal <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 06691/T19 <b>Existing Permit Issue Date:</b> 09/13/2016 <b>Existing Permit Expiration Date:</b> 12/31/2019	
<b>Total Actual emissions in TONS/YEAR:</b>							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2017	0.0300	9.81	54.47	8.23	0.0300	7.68	4.77 [Methanol (methyl alcohol)]
2016	0.0300	9.96	54.02	8.35	0.0300	8.73	5.22 [Methanol (methyl alcohol)]
2015	0.3900	10.75	53.66	8.98	0.6400	10.37	6.79 [Methanol (methyl alcohol)]
2014	0.4200	10.04	40.96	8.39	0.6000	14.66	7.20 [Triethylamine]
2013	0.0500	11.13	34.01	9.34	0.6500	12.02	9.23 [Methanol (methyl alcohol)]

<b>Review Engineer:</b> Judy Lee  <b>Review Engineer's Signature:</b> <b>Date:</b>	<b>Comments / Recommendations:</b>  <b>Issue:</b> 06691/T20 <b>Permit Issue Date:</b> XXXX, 2020 <b>Permit Expiration Date:</b> XXXX, 2025
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## 1. Purpose of Application

This permitting action is for the following:

Renewal of an existing Title V permit pursuant to 02Q .0513, the consolidation of 502(b)(10) modifications and one significant modification.

- American & Efird LLC – Plants 05 and 15 (referred to as A&E throughout this document) currently holds Title V Permit No. 06691T19 with an expiration date of December 31, 2019 for a textile manufacturing facility in Mt. Holly, Gaston County, North Carolina. This permit application is for a permit renewal. The renewal application was received on March 25, 2019, or at least nine months prior to the expiration date, as required by General Permit Condition 3.K. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.
- A&E also included copies of previously submitted request: three 502(b)(10) modifications received on October 30, 2017 (3600224.17A); February 14, 2018 (3600224.18A) and November 14, 2018 (3600224.18B) to be incorporated into the renewed permit.
- On January 15, 2019 A&E submitted a request for a minor modification. This request was determined to be a significant modification (3600224.19A) and will also be processed with this renewal.

## 2. Facility Description

A&E has two manufacturing facilities (Plant 05 and Plant 15) on their campus and both facilities are covered in Air Permit No. 06691T19. Plant 05 manufactures High VOC Bond and Low VOC Bond threads. Previously the facility permit referred to nylon and polyester thread processing, however, this was revised in the most recent permit to enable the facility to respond to customer requests for more varied product processing. Plant 15 is the dyeing and finishing facility. The mailing address for this facility is P.O. Box 507, Mount Holly, NC 28120. The facility operates on a 24 hour/7 day/50 week schedule with approximately 430 employees.

✓ **Facility name/address/legal name/responsible official check:**

**IBEAM** compared with Renewal application submittal:

Entity or Legal/Corporate/Owner Name: American & Efird LLC

Site Name per application is: Dyeing & Finishing Plant (Plant 15) and Filament Plant (Plant 5)

Site Name per IBEAM is: American & Efird Plants #5 & #15

Site Address per application is: 20 American St. & 601 American St., Mt. Holly, NC 28120, Gaston County

Site Address per IBEAM is: 601 American Street & 20 American Street, Mount Holly, NC 28120, Gaston County

NC Secretary of State Business Search:

[https://www.sosnc.gov/online\\_services/search/Business\\_Registration\\_Results](https://www.sosnc.gov/online_services/search/Business_Registration_Results)

Legal Name

American & Efird LLC

Prev Legal Name

American & Efird Operating Company, LLC

Mailing:

22 American Street

Mt. Holly, NC 28120

Per the most recent inspection performed on October 28, 2019 the mailing address is: P. O. Box 507, Mount Holly, NC 28120. This is the mailing address for the Facility, Authorized and Technical Contact in IBEAM documents module. In addition, the PO Box is on the cover letter of the most recent permit. Thus, this address will remain.

Responsible Official (RO) on file:

Mr. Jimmy Summers, Vice President - Environment, Health, Safety & Sustainability  
Chief Sustainability Officer

Email correspondence with the RO dated December 13, 2019 confirms the facility name and address as follows:

American & Efird LLC – Plants 05 and 15

20 American Street

Mount Holly, NC 28120

IBEAM was updated on February 19, 2020 by this review engineer.

The permit and review have been updated accordingly.

### **3. Compliance History/Statement**

No compliance problems have been noted in the last five years by DAQ, prior to the most recent inspection. The current compliance status is discussed in more detail in the latest inspection report prepared by Mr. Jim Vanwormer of the Mooresville Regional Office (MRO) conducted on October 28, 2019.

Excerpt from latest inspection report:

**9. Compliance Assistance.**

The permit modification listed the minimum fan speed for ES-12 to be 1780 rpm, however the facility is in the process of demonstrating the minimum fan speed should be 1680 rpm. MRO will coordinate to get the permit corrected.

**10. Summary of Changes Needed to the Current Permit:**

None.

**11. Findings:**

Based on my observations during this inspection, this facility is not in compliance with the applicable air quality regulations. The facility was not maintaining the minimum fan speed on ES-12 as identified on the 502(b)(10) notification. An NOV will be issued to the facility for violation of Air Permit No. 06691T19, Specific Limitation and Condition No. 2.1.B.6 and the 502(b)(10) notification.

Mr. Vanwormer, MRO indicated that the facility appeared to be in compliance with the air quality regulations of current Air Quality Permit No. 06691T19, with the exception of the monitoring requirements for ES-12. The fan speed was below the minimum requirement in the permit.

A Notice of Violation was sent to the facility dated December 3, 2019 requesting a written response within 10 days of receipt.

On December 13, 2019 the facility responded to MRO regarding the NOV requesting that the NOV be rescinded due to the fan speed previously provided to DEQ as part of the 502(b)(10) application for ES-12 being erroneous. The facility provided supporting documentation and the correct fan speed will be placed into the renewed permit.

**Permit Application:**

In accordance with the provisions of 15A NCAC 2Q .0520 and .0515(b)(4) the Responsible Official, Mr. Jimmy Summers, Vice President EHS/Sustainability, has signed the required Title V Compliance Certification - Form E5 dated March 18, 2019.

**4. Permit History/Background/Application Chronology**

**Application Chronology**

Please see the attached Comprehensive Application Reports for 3600224.19B, 3600224.17A, 3600224.18A, 3600224.18B and 3600224.19A; and email correspondence for more details.

October 30, 2017 – 502(b)(10) modification (3600224.17A) received.

February 14, 2018 – 502(b)(10) modification (3600224.18A) received.

November 14, 2018 – 502(b)(10) modification (3600224.18B) received.

January 15, 2019 – A&E submitted a request for a minor modification. This request was later determined to be a significant modification (3600224.19A).

March 25, 2019 – Renewal application (3600224.19B) received. The above modifications will be processed with this renewal.

April 2, 2019 – Above applications reassigned from Richard Simpson, RCO to this review engineer.

April 5, 2019 – Mr. Simpson forwarded 2 emails regarding the significant modification. February 27, 2019 email indicating that per Booker Pullen and Mark Cuilla, the proposed minor modification will be a one-step significant modification instead of a minor as requested. In a February 12, 2019 email, it was indicated that MRO found out about the NSPS Dc Boiler during the last inspection and initiated this modification. Please see the latest inspection report for Boiler 15-1 discussion.

August 15, 2019 – Email sent to Joe Voelker, RCO requesting Boiler MACT language.

August 20, 2019 – Email response from Mr. Voelker with Boiler MACT conditions.

August 22, 2019 – Email sent to Jimmy Summers, RO to clarify whether the thread bonding machines are heated electrically or by natural gas-fired oven.

September 11, 2019 – Voicemail left regarding the email sent on August 22, 2019 in addition, the following information is needed: 1) fire pump info (which tier engine), 2) tower fan speeds of 3 new machines, 3) legal name and address (3 different addresses listed).

October 28, 2019 – Compliance inspection conducted by Jim Vanwormer, MRO.

November 18, 2019 – Email sent to RO, copied regional contact, Mr. Vanwormer, MRO.

December 3, 2019 – Notice of Violation – Monitoring Requirements sent to A&E.

December 4, 2019 – Additional information sent to A&E's RO, copied MRO.

December 13, 2019 – Telephone conversation with RO and email correspondence regarding additional information request, voicemail and email's requesting information never being received. Mr. Summers' new email address is [Jimmy.Summers@elevatetextiles.com](mailto:Jimmy.Summers@elevatetextiles.com). The previous email address [jimmy.summers@amefird.com](mailto:jimmy.summers@amefird.com) should have been forwarded or bounced back as "undeliverable." Mr. Summers indicated that he would have the additional information to DAQ by the end of the day.

December 13, 2019 – Response to additional information request sent via email. Original signed copy to follow. Original received by DAQ on December 27, 2019.

December 18, 2019 – An initial draft of the permit and review were sent to Booker Pullen, RCO.

February 18, 2020 – Comments from first line supervisor, Mr. Pullen.

February 19, 2020 – A draft of the permit and review were sent to DAQ staff (Samir Parekh, SSCB and Jennifer Womick, MRO). A copy of the permit was sent to Mr. Summers, A&E.

February 21, 2020 – Comments received from Carlotta Adams, MRO.

April 2, 2020 – Comments from Mr. Summers, Amber Friday and Mike Garlick, A&E

XXXX, 2020 – The Public / EPA Notice periods began.

XXXX, 2020 – The Public Notice period ended. XXXX comments were received.

XXXX, 2020 – The EPA Notice period ended. XXXX comments were received.

Permit History since issuance of Initial Title V Permit (Permit No. 06691T07)

The initial Title V permit has been modified as follows since issuance on October 8, 2001 (Permit Number 06691T07):

Modified Permit Number	Type of Permit Modification	Changes Made	Issued Permit Number
06691T07	Administrative amendment	All changes were administrative	06691T08
06691T08	502(b)(10) Modification	Modify three bonding machines to manufacture polyester threads (ID Nos. ESD, ESE and ESF)	06691T09
06691T09	501(c)(2) Significant Modification	Construction and operation of a new nylon/polyester thread bonding process (ID No. ESI) and associated natural gas fired curing oven	06691T10
06691T10	502(b)(10)/state only toxics Modification	Modify an existing bonding machine (ID No. ESH) to process an additional substrate	06691T11
06691T11	501(c)(2) Significant Modification	Construction and operation of a new nylon thread bonding process (ID Nos. ESJ) and associated natural gas fired curing oven	06691T12
06691T12	Administrative amendment	Administrative amendment to correct a typographical error contained in their last permit modification package	06691T13
06691T13	501(c)(2) Significant Modification	Construction and operation of a new nylon/polyester thread bonding process (ID No. ESK) and associated natural gas fired curing oven controlled by an existing thermal oxidizer	06691T14

<b>Modified Permit Number</b>	<b>Type of Permit Modification</b>	<b>Changes Made</b>	<b>Issued Permit Number</b>
06691T14	Renewal/Modifications	TV permit renewal – Air Permit No. 06691T15 was issued on August 15, 2008 with an expiration date of July 31, 2013. Several permit modifications were consolidated with the permit renewal. With the issuance of the permit, the Prevention of Significant Deterioration (PSD) avoidance conditions in the permit were modified to consolidate the thread bonding machines into one less than 100 tons per year (tpy) VOC limit for avoidance of 02D .0902, Applicability for Reasonably Available Control Technology (RACT) and 02D .0531 PSD	<b>06691T15</b>
06691T15	Significant Modification – 112(j) Part I	Air Permit No. 06691T16 was issued. The Case-by-Case MACT requirements were added for the three natural gas/No. 2 fuel oil fired boilers (ES 15-1, ES 15-3, and ES 15-4)	06691T16
06691T16	Administrative amendment	Air Permit No. 06691T17 was issued for a name and ownership change	06691T17
06691T17	Renewal	TV permit renewal issued – Air Permit No. 06691T18	<b>06691T18</b>
06691T18	Significant Modification	Changed Plant #5 descriptions substituting references to nylon and polyester with High VOC Bonds and Low VOC Bonds; changed limits/standards associated with applicable regulations due to machine descriptions	06691T19

## 5. Permit Modifications/Changes and Title V Equipment Editor (TVEE) Discussion

The following table describes the modifications to the current permit (Air Permit No. 06691T19) as part of this renewal and application consolidations:

<b>Page No(s).</b>	<b>Section</b>	<b>Description of Changes</b>
Cover and throughout	--	Updated all dates and permit revision numbers. Updated all language and conditions per current shell guidance.
Cover Letter	Attachment Insignificant Activities	Added 2016 replacement fire pump (ID No. I-FWP) Removed existing fire pump (ID No. FWP1, 205 hp, installed in 1978)
Cover Letter	Attachment Table of Changes	Updated Table of Changes associated with this renewal with modifications.
3 - 4	1.0 – Equipment List	Added three additional processing lines (ID Nos. ES-12 through ES-14) Removed all reference to 02D .1109 Case-by-Case MACT Removed Footnotes referencing 112(j) and Subpart DDDDD Added “Dc” to NSPS affected boilers Added MACT DDDDD to affected boilers
5 – 14	2.1 A.	Updated table of applicable regulations and affected sources
6 – 8	2.1 A.4	Revised .02D .0524 Subpart Dc per Joe Voelker’s revised language
N/A	2.1 A.5	Removed all reference to 02D .1109 Case-by-Case MACT
9 – 11	2.1 A.6 (old) 2.1 A.5 (new)	Updated 02D .1111 Subpart DDDDD per Joe Voelker’s revised language for existing boilers (ID Nos. ES 15-4 and ES 15-3) with adjustments and dates compliance requirements were met, where applicable

Page No(s).	Section	Description of Changes
11 – 14	2.1 A.6	Added 02D .1111 Subpart DDDDD condition for reconstructed boiler (ID No. ES 15-1) per Joe Voelker's language with adjustments and dates compliance requirements were met, where applicable
14 – 21	2.1 B	Updated table of applicable regulations Removed reference to 02Q .0711, inadvertently left in table during processing of issued permit 06691T18 Added three proposed thread bonding machines (ID Nos. ES-12 through ES-14)
19 – 21	2.1 B.6	Added three proposed thread bonding machines (ID Nos. ES-12 through ES-14)
19	2.1 B.6.d. through f.	Updated RACT/PSD avoidance condition per DAQ's latest policy regarding testing requirements (i.e., changing operating parameters) through revising 2.1 B.6.d. and adding 2.1 B.6.e. & f.; renumbered subsequent sections
21	2.1 B.6.m. (old) 2.1 B.6.n. (new)	Renumbered section Added fan speed for three proposed thread bonding machines (ID Nos. ES-12 through ES-14) and footnotes
23 – 24	2.2 A	Added three proposed thread bonding machines (ID Nos. ES-12 through ES-14) Updated 15A NCAC 02D .0958 per shell guidance, remains for Gaston County
24 – 27	2.2 B	Added three proposed thread bonding machines (ID Nos. ES-12 through ES-14)
27	2.2 C	Removed table of applicable regulations per shell
N/A	2.2 D	Removed reference to 2.2.D Control of Toxic Air Pollutants – emission rates requiring a permit; State Enforceable Only which was inadvertently left in the table of applicable regulations (Section 2.1 B) during processing of renewed permit No. 06691T18.
28	2.3 C and D	Updated to include all 14 thread bonding machines
29 – 37	Section 3.0	Updated the General Conditions to the most recent revision (Version 5.3)
38	Attachment	Updated the list of acronyms to the most recent revision

The following sources were added/modified as part of the renewal with application consolidations:

### **Proposed Equipment Changes**

Per application submittal for this permit modification, the following changes were requested (see Form A2 and Attachments for more details):

#### **Equipment to be ADDED**

Emission Source ID NO.	Emission Source Description	Control Device ID NO.	Control Device Description
ES-12	Electrically Heated Thread Bonding Process	CD-1	Natural gas-fired thermal oxidizer



<b>Emission Source ID NO.</b>	<b>Emission Source Description</b>	<b>Control Device ID NO.</b>	<b>Control Device Description</b>
ES-13	Electrically Heated Thread Bonding Process	CD-1	Natural gas-fired thermal oxidizer
ES-14	Electrically Heated Thread Bonding Process	CD-1	Natural gas-fired thermal oxidizer

Equipment to be MODIFIED

<b>Emission Source ID NO.</b>	<b>Emission Source Description</b>	<b>Control Device ID NO.</b>	<b>Control Device Description</b>
ES-15-1	33.745 million Btu/hr boiler burning natural gas with No. 2 fuel oil backup	N/A	N/A

Equipment to be REMOVED — n/a

Changes in Emissions

Total Facility-wide emissions based on Emission Inventory (please see table at beginning of document).

- Significant modification (Application No. 3600224.19A) – Reconstruction of Boiler #1 (ID No. ES-15-1). The Title V Minor Modification Form description indicates the facility is changing the status of Boiler #1 from existing to reconstructed, from work that was completed on the boiler in April 2015. The boiler is considered reconstructed (April 2015) under NSPS Dc and MACT Subpart DDDDD.

Per the application, Boiler #1 (ID No. ES 15-1) repairs were made in April 2015 to existing boiler #1. At the time it was not believed that the modifications had triggered reconstruction under NSPS and NESHAP regulations.

The process heat industrial boiler is a Cleaver-Brooks model No. CB-200-800-150, 33.745 million British thermal unit (Btu) per hour natural gas-fired with No. 2 fuel oil backup Gas 1 Boiler under NESHAP Subpart DDDDD. The start date of reconstruction was January 2015 with a completion date of April 2015.

Per latest inspection report:

“The natural gas/No. 2 fuel oil-fired boiler (ID No. ES 15-1) was manufactured by Cleaver Brooks in 1999. The facility initially reported that the cost of the rebuild was \$188,559 and the cost of an equivalent boiler was \$308,412. The facility stated that the repairs were to the heat exchange area and not the burner. The boiler classification has been changed to “new” for NESHAP 5D and the facility will submit a modification air permit application. Due to the repairs on the boiler, the National Board No. changed the identification number from 11538 (as noted in previous inspections) to 19186.”

Form B – Specific Emissions Source Information (Required for all Sources):

33.745 million Btu per hour (Btu/hr) natural gas with No. 2 fuel oil backup. Gas 1 Boiler under NESHAP Subpart DDDDD.

Per the most recent inspection report, the boiler combusts natural gas during normal operation and only combusts fuel oil during natural gas curtailment or testing and maintenance. The boiler has a meter for fuel oil and indicates the boiler combusted 89 gallons of fuel oil since the last inspection in October 2018. The facility conducted tune-ups on this boiler on January 22, 2018 and January 16, 2019. The energy assessment was conducted on December 4, 2018.

Expected emissions from boiler #1 per Form B:

Pollutant	Source of Emission Factor	Expected Actuals		Potential Emissions			
		(After controls/Limits)		(Before controls/Limits)		(After controls/Limits)	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PM	AP-42	0.02	0.01	0.02	0.07	0.02	0.07
PM10	AP-42	0.01	0.00	0.01	0.03	0.01	0.03
PM2.5	AP-42	0.01	0.01	0.01	0.05	0.01	0.05
SO2	AP-42	0.02	0.01	0.02	0.09	0.02	0.09
NOx	AP-42	3.28	2.33	3.28	14.38	3.28	14.38
CO	AP-42	2.76	1.96	2.76	12.08	2.76	12.08
VOC	AP-42	0.18	0.13	0.18	0.79	0.18	0.79
Lead	AP-42	0.000016	0.023	0.000016	0.14	0.000016	0.14

DAQ Natural Gas Combustion Emissions Calculator:

SOURCE / FACILITY / USER INPUT SUMMARY (FROM INPUT SCREEN)									
COMPANY: <b>A &amp; E</b>				FACILITY ID NO.: 3600224					
EMISSION SOURCE DESCRIPTION: 33.745 MMBTU/HR NATURAL GAS-FIRED BOILER				PERMIT NUMBER: 06691T19					
EMISSION SOURCE ID NO.: ES-15-1				FACILITY CITY: Mt. Holly					
CONTROL DEVICE: NO CONTROL				FACILITY COUNTY: Gaston					
SPREADSHEET PREPARED BY: JRL				POLLUTANT		CONTROL EFF.			
ACTUAL FUEL THROUGHPUT: 50.00		10 <sup>6</sup> SCF/YR		FUEL HEAT VALUE: 1.030		BTU/SCF		NOX	
POTENTIAL FUEL THROUGHPUT: 287.00		10 <sup>6</sup> SCF/YR		BOILER TYPE: SMALL BOILER (<100 mmBTU/HR)		NO SNCR APPLIED			
REQUESTED MAX. FUEL THRPT: 287.00		10 <sup>6</sup> SCF/YR		HOURS OF OPERATIONS: 24					
CRITERIA AIR POLLUTANT EMISSIONS INFORMATION									
AIR POLLUTANT EMITTED	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS				EMISSION FACTOR		
	lb/hr	tons/yr	(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)		lb/MMBtu		
			lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled	controlled	
PARTICULATE MATTER (Total)	0.02	0.01	0.02	0.07	0.02	0.07	0.001	0.001	
PARTICULATE MATTER (Filterable)	0.01	0.01	0.01	0.03	0.01	0.03	0.000	0.000	
PARTICULATE MATTER (Condensable)	0.01	0.01	0.01	0.05	0.01	0.05	0.000	0.000	
PM 2.5 (Total)	0.01	0.01	0.01	0.06	0.01	0.06	0.000	0.000	
PM 2.5 (Filterable)	0.00	0.00	0.00	0.02	0.00	0.02	0.000	0.000	
SULFUR DIOXIDE (SO2)	0.02	0.02	0.02	0.09	0.02	0.09	0.001	0.001	
NITROGEN OXIDES (NOx)	3.28	2.50	3.28	14.35	3.28	14.35	0.097	0.097	
CARBON MONOXIDE (CO)	2.75	2.10	2.75	12.05	2.75	12.05	0.082	0.082	
VOLATILE ORGANIC COMPOUNDS (VOC)	0.18	0.14	0.18	0.79	0.18	0.79	0.005	0.005	
TOXIC / HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION									

Assume PM = PM10

## DAQ Fuel Oil Combustion Emissions Calculator:

SOURCE / FACILITY / USER INPUT SUMMARY (FROM INPUT SCREEN)								
COMPANY:	A & E			MAX HEAT INPUT:	33.75 MMBTU/HR			
FACILITY ID NO.:	3600224			FUEL HEAT VALUE:	142,000 BTU/GAL			
PERMIT NUMBER:	06691T19			HHV for GHG CALCULATIONS:	0.138 mm BTU/GAL			
FACILITY CITY:	Mt. Holly			ACTUAL ANNUAL FUEL USAGE:	100,000 GAL/YR			
FACILITY COUNTY:	Gaston			MAXIMUM ANNUAL FUEL USAGE:	2,081,734 GAL/YR			
USER NAME:	JRL			MAXIMUM SULFUR CONTENT:	0.5 %			
EMISSION SOURCE DESCRIPTION:	No. 2 oil-fired Boiler			REQUESTED PERMIT LIMITATIONS				
EMISSION SOURCE ID NO.:	ES-15-1			MAX. FUEL USAGE:	2,081,734 GAL/YR			
				MAX. SULFUR CONTENT:	0.5 %			
TYPE OF CONTROL DEVICES				POLLUTANT	CONTROL EFF.			
NONE/OTHER				PM	0			
NONE/OTHER				SO <sub>2</sub>	0			
NONE/OTHER				NO <sub>x</sub>	0			
METHOD USED TO COMPUTE ACTUAL GHG EMISSIONS:				TIER 1: DEFAULT HIGH HEAT VALUE AND DEFAULT EF				
CARBON CONTENT USED FOR GHGS (kg C/gal):				CARBON CONTENT NOT USED FOR CALCULATION TIER CHOSEN				
CRITERIA AIR POLLUTANT EMISSIONS INFORMATION								
AIR POLLUTANT EMITTED	ACTUAL EMISSIONS		POTENTIAL EMISSIONS				EMISSION FACTOR	
	[AFTER CONTROLS / LIMITS]		[BEFORE CONTROLS / LIMITS]		[AFTER CONTROLS / LIMITS]		[lb/10 <sup>3</sup> gal]	
TOTAL PARTICULATE MATTER (PM) (FPM+CPM)	0.78	0.17	0.78	3.43	0.78	3.43	3.30E+00	3.30E+00
FILTERABLE PM (FPM)	0.48	0.10	0.48	2.08	0.48	2.08	2.00E+00	2.00E+00
CONDENSABLE PM (CPM)	0.31	0.07	0.31	1.35	0.31	1.35	1.30E+00	1.30E+00
FILTERABLE PM<10 MICRONS (PM <sub>10</sub> )	0.24	0.05	0.24	1.04	0.24	1.04	1.00E+00	1.00E+00
FILTERABLE PM<2.5 MICRONS (PM <sub>2.5</sub> )	0.06	0.01	0.06	0.26	0.06	0.26	2.50E-01	2.50E-01
SULFUR DIOXIDE (SO <sub>2</sub> )	16.87	3.55	16.87	73.90	16.87	73.90	7.10E+01	7.10E+01
NITROGEN OXIDES (NO <sub>x</sub> )	4.75	1.00	4.75	20.82	4.75	20.82	2.00E+01	2.00E+01
CARBON MONOXIDE (CO)	1.19	0.25	1.19	5.20	1.19	5.20	5.00E+00	5.00E+00
VOLATILE ORGANIC COMPOUNDS (VOC)	0.05	0.01	0.05	0.21	0.05	0.21	2.00E-01	2.00E-01
LEAD	0.00	0.00	0.00	0.00	0.00	0.00	1.26E-03	1.26E-03
TOXIC / HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION								

Existing boiler #1 was reconstructed; however, this modification is not expected to cause a change in emissions.

- 502(b)(10) modification (Application No. 3600224.18B) – Addition of Thread Bonding Machine #13 (ID No. ES-13). The 502(b)(10) Form and Form A2 – Emission Source Listing for This Application indicates that the new bonding line will be heated with electricity only.

Form B – Specific Emissions Source Information (Required for all Sources):

Thread is drawn through a bonding solution and is then cured in an electrical drying oven. It was confirmed by the RO via email on December 13, 2019 that the ovens are electrically heated.

Operating scenario #1 involves the application of High VOC Bonds, which are bonds that contain greater than 9% VOC by weight. VOC and HAP emissions from High VOC Bonds are collected and controlled by the Thermal Oxidizer.

Operating scenario #2 involves the application of Low VOC Bonds, which are bonds that contain less than or equal to 9% VOC by weight. VOC and HAP emissions from Low VOC Bonds are emitted directly to the atmosphere.

Expected emissions from thread bonding machine #13:

Pollutant	Source of Emission Factor	Expected Actuals		Potential Emissions			
		(After controls/Limits)		(Before controls/Limits)		(After controls/Limits)	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
VOC <sup>1</sup>	Mat Bal	0.58	1.94	56.92	239.0	0.4	1.67
VOC <sup>2</sup>	Mat Bal	3.08	10.24	3.08	12.94	3.08	12.94

<sup>1</sup>VOC/HAP (Methanol) emissions are equal under operating scenario #1

<sup>2</sup>VOC emissions only under operating scenario #2

Form A2 and Form B5 – Emission Source (Coating/Finishing/Printing) indicate that the oven is electrically heated.

- 502(b)(10) modification (Application No. 3600224.18A) – Addition of Thread Bonding Machine #14 (ID No. ES-14). The 502(b)(10) Form and Form A2 – Emission Source Listing for This Application indicates that the new bonding line will be heated with electricity only.

Form B – Specific Emissions Source Information (Required for all Sources):

Thread is drawn through a bonding solution and is then cured in an electrical drying oven. It was confirmed by the RO via email on December 13, 2019 that the ovens are electrically heated.

Operating scenario #1 involves the application of High VOC Bonds, which are bonds that contain greater than 9% VOC by weight. VOC and HAP emissions from High VOC Bonds are collected and controlled by the Thermal Oxidizer.

Operating scenario #2 involves the application of Low VOC Bonds, which are bonds that contain less than or equal to 9% VOC by weight. VOC and HAP emissions from Low VOC Bonds are emitted directly to the atmosphere.

Expected emissions from thread bonding machine #14:

Pollutant	Source of Emission Factor	Expected Actuals		Potential Emissions			
		(After controls/Limits)		(Before controls/Limits)		(After controls/Limits)	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
VOC <sup>1</sup>	Mat Bal	0.58	1.94	56.92	239.0	0.4	1.67
VOC <sup>2</sup>	Mat Bal	3.08	10.24	3.08	12.94	3.08	12.94

<sup>1</sup> VOC/HAP (Methanol) emissions are equal under operating scenario #1

<sup>2</sup> VOC emissions only under operating scenario #2

Form A2 and Form B5 – Emission Source (Coating/Finishing/Printing) indicate that the oven is electrically heated.

- 502(b)(10) modification (Application No. 3600224.17A) – Addition of Thread Bonding Machine #12 (ID No. ES-12) The 502(b)(10) Form and Form A2 – Emission Source Listing for This Application indicates that the new bonding line will be heated with electricity only.

Form B – Specific Emissions Source Information (Required for all Sources):

Thread is drawn through a bonding solution and is then cured in an electrical drying oven. It was confirmed by the RO via email on December 13, 2019 that the ovens are electrically heated.

Operating scenario #1 involves the application of High VOC Bonds, which are bonds that contain greater than 9% VOC by weight. VOC and HAP emissions from High VOC Bonds are collected and controlled by the Thermal Oxidizer.

Operating scenario #2 involves the application of Low VOC Bonds, which are bonds that contain less than or equal to 9% VOC by weight. VOC and HAP emissions from Low VOC Bonds are emitted directly to the atmosphere.

Expected emissions from thread bonding machine #12:

Pollutant	Source of Emission Factor	Expected Actuals		Potential Emissions			
		(After controls/Limits)		(Before controls/Limits)		(After controls/Limits)	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
VOC <sup>1</sup>	Mat Bal	0.58	1.94	56.92	239.0	0.4	1.67
VOC <sup>2</sup>	Mat Bal	3.08	10.24	3.08	12.94	3.08	12.94

<sup>1</sup> VOC/HAP (Methanol) emissions are equal under operating scenario #1

<sup>2</sup> VOC emissions only under operating scenario #2

Form A2 and Form B5 – Emission Source (Coating/Finishing/Printing) indicate that the oven is electrically heated.

Each modification listed above has emissions below PSD Significant Emission Rate (SER) for each pollutant, as discussed in detail under Section 6 below.

- ✓ Modifications to Title V Equipment Editor (TVEE) were required as a result of this renewal.

TVEE changes were reviewed and approved on XXXX, 2020. See Permit Modification Tracking slip for confirmation.

## 6. Regulatory Review

The facility is currently subject to the following regulations:

- 15A NCAC 02D .0503, Particulates from Fuel Burning Indirect Heat Exchangers
- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521, Control of Visible Emissions

- 15A NCAC 02D .0524, New Source Performance Standards (NSPS): 40 CFR Part 60 Subpart Dc, “Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units” and 40 CFR Part 60 Subpart VVV, “Standards of Performance for Polymeric Coating of Supporting Substrates Facilities”
- 15A NCAC 02D .0900, VOC Reasonably Available Control Technology (RACT)
- 15A NCAC 02D .0909, Compliance Schedules for Sources in Non-attainment Areas
- 15A NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds
- 15A NCAC 02D .1100, Control of Toxics Air Pollutants
- 15A NCAC 02D .1109, Case-by-Case MACT for Boilers & Process Heaters
- 15A NCAC 02D .1111, Maximum Achievable Control Technology: 40 CFR Part 63, Subpart DDDDD, “National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers;” 40 CFR Part 63 Subpart OOOO “National Emissions Standard for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and other Textiles;” and 40 CFR Part 63 Subpart ZZZZ “National Emissions Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines”
- 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions
- 15A NCAC 02Q .0317, Avoidance Conditions for 15A NCAC 2D .0524, New Source Performance Standards (40 CFR Part 60 Subpart VVV); 15A NCAC 02D .0531, SOURCES IN NONATTAINMENT AREAS and 15A NCAC 02D .0902 “Applicability”
- 15A NCAC 02Q .0512, Permit Shield for Nonapplicable Requirements - 15A NCAC 02D .0951, “Miscellaneous Volatile Organic Compound Emissions” for RACT; 15A NCAC 02D .0955, “Thread Bonding Manufacturing” for RACT and 15A NCAC 02D .1400, NO<sub>x</sub> Reasonably Available Control Technology (RACT)
- 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

Applicability of the above regulations were reviewed as part of this renewal with consolidations. In addition, the facility is subject to requirements provided in Section 3 – General Conditions. The permit will be updated to reflect the most current stipulations for all applicable regulations. A detailed review will be included only for regulations impacted by this renewal and consolidations as discussed below:

### Prevention of Significant Deterioration

The prevention of significant deterioration (PSD) regulations apply to new major stationary sources or existing major sources that propose a major modification. PSD major stationary sources are considered to be those sources belonging to any one of the 28 source categories listed in the regulations that has the potential to emit (PTE) more than 100 tons per year of any PSD-regulated compound, or any other source which has the potential to emit more than 250 tons per year of any PSD compound. A&E does not belong to one of the 28 source categories. However, the A&E facility currently has an avoidance condition of less than 100 tpy VOC to avoid being a major source under Nonattainment and to avoid RACT. A&E is located in Gaston County, which was previously designated as nonattainment with the ozone standard. Since the area was declared a maintenance area and in attainment on July 28, 2015 Nonattainment no longer applies. However, the existing 100 tpy VOC/RACT limitation will remain in the permit because it was used to help bring the area into attainment. A&E is considered a minor stationary source under

PSD regulations because of the RACT/PSD avoidance limit. Because of this, PSD applicability shall be reviewed and evaluated during this renewal/significant modification.

A project is considered a major modification if there is a physical change in or a change in the method of operation of a major stationary source that would result in both a significant emissions increase and a significant net emissions increase. A significant increase in emissions of a regulated PSD pollutant is projected to have occurred if the difference between the emissions after the project and the emissions before the project are greater than the significant emission rate (SER) for that pollutant. When a new emissions unit at a major source is being installed, the emissions after the project are based on the potential to emit (PTE) of the new unit and the baseline emissions are zero.

➤ Prevention of Significant Deterioration Analysis

<b>Pollutant</b>	<b>Permit Application for Boiler #1 PTE (tpy)<sup>1,2</sup></b>	<b>Permit Applications for each Thread Bonding Machine PTE (tpy)<sup>1</sup></b>	<b>PSD SER (tpy)</b>	<b>Is PSD Review Required?</b>
Total PM	1.75	N/A	25	No
PM <sub>10</sub>	0.56	N/A	15	No
PM <sub>2.5</sub>	0.16	N/A	10	No
SO <sub>2</sub>	37.0	N/A	40	No
NO <sub>x</sub>	17.58	N/A	40	No
CO	8.62	N/A	100	No
VOC	0.5	14.61	40	No
Lead	0.07	N/A	0.600	No

<sup>1</sup> PTE after controls

<sup>2</sup> Average of natural gas and No. 2 fuel oil emissions due to No. 2 fuel only being the worse fuel and only used during gas curtailment and/or testing and maintenance

Based on the PTE for each modification being below the SER for each pollutant, no major modification under PSD was triggered; thus, no further PSD review is necessary.

- 15A NCAC 02D .0503, Particulates from Fuel Burning Indirect Heat Exchangers – The natural gas/No. 2 fuel oil-fired boilers (ID Nos. ES 15-1, ES 15-3, and ES 15-4) are subject to 02D .0503. Allowable particulate matter (PM) emissions are determined from the equation:

$$E = 1.090(Q)^{-0.2594}$$

Where, E = the allowable emission limit for PM in pounds per million Btu (lbs/million Btu), and Q = the maximum heat input in million Btu per hour.

The allowable PM emissions were recalculated under a previous permit renewal with modifications (0669T15), using a Q of 81.65 million Btu per hour [14.7 + 33.475+33.475] due to incorrectly permitted heat capacities and boiler ES 15-2 not being installed and

removed from the permit (refer to T15 review for more details). With this maximum heat input, the allowable PM emissions are 0.35 lb per million Btu.

Based on emission factors (EFs) for natural gas and No. 2 fuel oil, the total particulate matter emissions are estimated to be **0.007** pounds per million Btu while firing natural gas and **0.024** pounds per million Btu while firing No. 2 fuel oil. Estimations are based on DAQ spreadsheets and AP-42 emission factors (Chapter 1 Introduction to External Combustion Sources).

Emission factor of 3.3 lb/1000 gallon while firing No. 2 fuel oil =  $3.3 \text{ lb/1000 gal} * 1 \text{ gal/140,000 Btu} * 1,000,000 \text{ BTU/million Btu} = 0.02357 \text{ lbs/million Btu}$

Emission factor of 7.6 lb/10<sup>6</sup> scf while firing Natural gas =  $7.6 \text{ lb/10}^6 \text{ scf} * 10^6 \text{ scf/1020 million Btu} = 0.007 \text{ lbs/million Btu}$

[Per AP-42 Chapter 1.4 Natural Gas Combustion – To convert to an energy basis (lb/MMBtu), divide by a heating value of 1,020 MMBtu/10<sup>6</sup> scf.]

Because the expected PM emissions are far below the allowable emissions (0.35 lb per million Btu as calculated above) for worse case fuel (No. 2 fuel oil); no monitoring, recordkeeping, or reporting (MRRR) is required to ensure compliance for this rule. No changes to the monitoring, recordkeeping, or reporting requirements are needed under this renewal, and continued compliance is anticipated.

- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes – The thread bonding processes and associated natural gas-fired curing ovens (ID Nos. ES-1 through ES-14) are subject to 2D .0515.

This regulation establishes an allowable emission rate for particulate matter (PM) from any stack, vent, or outlet resulting from any industrial process for which no other emission control standards are applicable. The regulation applies to Total Suspended Particulate (TSP) or PM less than 100 micrometers (µm). The allowable PM limit is calculated by the following equation:

$$E = 4.1P^{0.67} \text{ for } P < 30 \text{ tph}$$

Where, E = allowable emission rate for particulate matter in pounds per hour, and  
P = process weight in tons per hour

The applications for the proposed new thread bonding machines indicate that the weight of material being printed or coated is 0.485 lbs/foot per 100 strands with a maximum coverage of ink/coating of 0.0009 gal/ft and a maximum speed of 400 ft/min.



Estimation of “E” allowable emissions for thread only:

$$E = 4.1 * [0.485 \text{ lbs/ft} / 100 \text{ strands} * 400 \text{ ft/minute} * 3,600 \text{ min/hr} * \text{ton}/2000 \text{ lbs} = 3.49 \text{ tons/hr thread}]^{0.67} = 9.47 \text{ lbs/hr allowable emissions}$$

No information on the solvent/coatings used was provided.<sup>1</sup> Therefore, solvent information from the review for renewed Title V Permit No. 06691T15 issued on August 15, 2008 was used, as summarized below:

Allowable emissions were estimated very conservatively during the initial Title V review using the process weight of the solvent only (actual allowables will be higher when including the weight of the thread).

To be conservative, the same methodology as previously used during permitting of the Initial Title V was used to determine expected allowables from the three proposed thread bonding machines (ID Nos. ES-12 through ES-14).

The facility is currently using the same solvents for the High and Low VOC bond threads (previously permitted as nylon and nylon/polyester) machines as during the initial Title V review and subsequent review for issued renewed Permit No. 06991T15. Compliance is demonstrated based on solvent information provided with the initial Title V review as provided below for each proposed machine (ID Nos. ES-12 through ES-14), in addition to the allowable calculated above based on thread only:

Excerpt from review for previous Renewal (06691T15):

***Nylon thread bonding machines*** - Process rate of solvent into machines A and B (ID Nos. ESA and ESB) now permitted as machines 1 and 4 (ID Nos. ES-1 and ES-4, respectively) is 0.0647 tons per hour [(129.4 pounds per hour/2000 lbs per ton) based on 19.6 gallons per hour times 6.6 pounds per gallon density for methanol]. This yields an allowable emission rate of 0.65 pounds per hour.

***Nylon/Polyester thread bonding machines*** - Process rate of solvent into machines C through H (ID Nos. ESC through ESH) now permitted as machines 5 through 9, and 2 (ID Nos. ES-5 through ES-9 and ES-2, respectively) is 0.0594 tons per hour [(118.4 pounds per hour/2000 lbs per ton) based on 18 gallons per hour times 6.6 pounds per gallon density for machine D (ES-6)]. This yields an allowable emission rate of 0.62 pounds per hour.

Particulate matter emissions are expected from the combustion of natural gas only during the thread bonding process. Potential before control emissions are estimated using AP-42 emission factors [(0.007 lb/ million Btu \* 3.4 million Btu per hour<sup>2</sup>)] to be 0.0238 pounds per

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<sup>1</sup> The applications submitted for the three proposed thread bonding machines did not contain the necessary process weights of the thread coatings used. However, it did contain the weight of the thread, unlike the Initial Title V application. Form B5 of the applications under Coating/Solvent use references “See attached table, SDSs, and Environmental Data Forms.” However, the supporting documentation is not provided. This information was provided for thread bonding machines during the processing of the renewal for issued Permit No. 06691T15 and the Initial Title V Permit No. 06691T07.

<sup>2</sup> The three proposed thread bonding machines are electrically heated; thus, no particulates are expected.

hour from each machine. Compliance with the allowable emission limit for the maximum process rate is demonstrated due to PM emissions from natural gas being much lower than the allowable under 2D .0515.

The facility is required to maintain production records such that the process rate “P” as specified under this regulation can be derived to allow calculation of the allowable PM emissions. No other MRRR is required, and continued compliance is expected based on the expected actuals being much lower than the allowable emissions for each machine whether processing High VOC bonds or Low VOC bonds.

- 15A NCAC 02D .0516, Sulfur Dioxide from Combustion Sources – This regulation limits sulfur dioxide (SO<sub>2</sub>) emissions to no greater than 2.3 pounds emitted per million Btu heat input from combustion sources that are unaffected by SO<sub>2</sub> limits in other state or Federal regulations.

The following emission sources<sup>3</sup> are subject to 02D .0516:

- Three natural gas/No. 2 fuel oil-fired boilers (ID Nos. ES 15-1, ES 15-3, and ES 15-4) when firing natural gas only, and
- Eleven thread bonding processes and associated natural gas-fired curing ovens (ID Nos. ES-1 through ES-11).

**Boilers** - Emissions from ES 15-1, ES-3 and ES 15-4 are subject to 02D .0516 when combusting natural gas. Allowable emissions per this regulation are 2.3 pounds per million Btu heat input.

Note that the three natural gas/No. 2 fuel oil-fired boilers (ID Nos. ES 15-1, ES 15-3, and ES 15-4) are subject to the sulfur dioxide emission standards under NSPS Subpart Dc when firing No. 2 fuel oil.

A source subject to an emission standard for sulfur dioxide in Rules 02D .0524, .0527, .1110, .1111, .1205, .1206, or .1210 of this Subchapter shall meet the standard in that rule; therefore, ES 15-1, ES 15-3 and ES 15-4 are subject to 02D .0524 for SO<sub>2</sub> emissions.

Worst case SO<sub>2</sub> emissions are estimated to be 0.51 pounds per million Btu while firing No. 2 fuel oil using AP-42 Chapter 1.3 Fuel Oil Combustion, Table 1.3-1. Estimation is based on DAQ spreadsheets and AP-42 emission factors:

$$[142S \text{ lb/1000 gal} = 142 * 0.5 (\% \text{ Sulfur}) \text{ lb/1000 gal}]$$

Per AP-42, S indicates that the weight % of sulfur in the oil should be multiplied by the value given. For example, if the fuel is 1% sulfur, then S = 1. Per Form B1 – Emission Source (Wood, Coal, Oil, Gas, Other Fuel-fired Burner) the Sulfur (S) content by weight is 0.5%.

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<sup>3</sup> Three proposed thread bonding processes and associated oven (ID Nos. ES-12 through ES-14) are not subject because they are electrically heated.

[EF of 71.0 lb/1000 gal while firing No. 2 fuel oil = 71 lb/1000 gal \* 1 Btu/140,000 gal \* 1,000,000 Btu/million Btu = 0.507 lbs/million Btu].

Per AP-42, Table 1.4-1; SO<sub>2</sub> EF while firing natural gas = 0.6 lb /10<sup>6</sup> scf; per Form B1 natural gas specific Btu content = 1,030 Btu/cubic foot; thus, [(0.6 lb/10<sup>6</sup> scf) / (1,030 Btu/cf) \* 1,000,000 Btu/million Btu] = 0.00058 lb/million Btu

Compliance is demonstrated with this regulation since estimated emissions are less than the allowable.

***Thread bonding machines*** - These emission sources and their associated curing ovens are sources of combustion which discharge through a stack and therefore are subject to this regulation. Allowable emissions of sulfur dioxide from these sources while firing natural gas shall not exceed 2.3 pounds per million Btu heat input. Natural gas is an inherently low sulfur emitting fuel; compliance is expected.

SO<sub>2</sub> emissions from the eleven thread bonding machines with natural gas-fired curing ovens and the thermal oxidizer (35.8 and 5.0 million Btu/hr respectively) are estimated to be 0.041 pounds per hour based on AP-42 and DAQ spreadsheets:

[(0.001 lb/million Btu \* 40.8 million Btu per hour)]. Compliance is demonstrated with this regulation since estimated emissions are less than the allowable.

No MRRR is required when firing natural gas because of the low sulfur content of the fuel. Natural gas is inherently low enough in sulfur that continued compliance is expected. No changes to the monitoring, recordkeeping, or reporting are required under this permit renewal.

- 15A NCAC 02D .0521, Control of Visible Emissions – Visible emission (VE) standards provided in this regulation are applicable to potential VE emissions from any stack, vent, or outlet. For sources manufactured after July 1, 1971, VEs shall not be more than 20 percent opacity when averaged over a six-minute period. However, except for sources which are required to install, operate, and maintain continuous opacity monitors, six-minute averaging periods may exceed 20 percent opacity if: (1) No six-minute period exceeds 87 percent opacity; (2) No more than one six-minute period exceeds 20 percent opacity in any hour; and (3) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

The following equipment was manufactured after July 1, 1971 and must not have VE of more than 20 percent opacity when averaged over a six-minute period, except as specified in 15A NCAC 02D .0521(d).

- One natural gas/No. 2 fuel oil-fired boiler (ID No. ES 15-4) when firing any fuel.
- Two natural gas/No. 2 fuel oil-fired boilers (ID Nos. ES 15-1 and ES 15-3) when firing natural gas.
- Eleven thread bonding processes and associated natural gas-fired curing ovens (ID Nos. ES-1 through ES-11).

- Three proposed thread bonding processes and associated oven (ID Nos. ES-12 through ES-14)

The existing coating operations (ID Nos. ES-1 through ES-11), as well as the proposed modifications to add three thread bonding machines (ID Nos. ES-12 through ES-14) are subject to 20 percent opacity limit. VEs are not expected from these sources, as the main pollutant with this process is VOC. Although negligible amounts of other criteria pollutant emissions are expected from the curing ovens, compliance is expected with this limit.

Note that two natural gas/No. 2 fuel oil-fired boilers (**ID Nos. ES 15-1 and ES 15-3**) are subject to the opacity limits under NSPS Subpart Dc when firing No. 2 fuel oil.

This Rule shall apply to all fuel burning sources and to other processes that may have a visible emission. However, sources subject to a visible emission standard in Rules .0506, .0508, .0524, .0543, .0544, .1110, .1111, .1205, .1206, .1210, .1211, or .1212 of this Subchapter shall meet that standard instead of the standard contained in this Rule. This Rule does not apply to engine maintenance, rebuild, and testing activities where controls are infeasible, except it does apply to the testing of peak shaving and emergency generators. (In deciding if controls are infeasible, the Director shall consider emissions, capital cost of compliance, annual incremental compliance cost, and environmental and health impacts.)

No MRRR is required when firing natural gas or No. 2 fuel oil in these emission sources under 02D .0521. No changes to the MRRR are required under this permit renewal with modifications.

- 15A NCAC 02D .0524, New Source Performance Standards (NSPS)  
A&E is subject to the following NSPS regulations. More discussion on NSPS is provided under Section 7.
  - Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60  
Source: 72 FR 32759, June 13, 2007, unless otherwise noted.

§60.40c Applicability and delegation of authority.

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).

Per §60.48c(g), the facility must record and maintain records of the amounts of each fuel combusted during each month for the boiler(s). The records must be maintained on-site for a period of two (2) years. Additionally, the facility must submit the fuel usage records for each six-month period within 30 days after the end of each period.

§60.42c Standard for sulfur dioxide (SO<sub>2</sub>).

Per 40 CFR 60.42c(d), any oil combusted in the boilers shall contain less than 0.5% by weight sulfur.

...

(h) For affected facilities listed under paragraphs (h)(1), (2), (3), or (4) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

(1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr).

§60.43c Standard for particulate matter (PM).

...

(c) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. Owners and operators of an affected facility that elect to install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) for measuring PM emissions according to the requirements of this subpart and are subject to a federally enforceable PM limit of 0.030 lb/MMBtu or less are exempt from the opacity standard specified in this paragraph (c).

Boilers (ID Nos. ES-15-1, ES-3 and ES-15-4) were constructed after June 9, 1989 and have maximum design heat capacities greater than 10 million Btu per hour. The three boilers are permitted at 33.475, 33.475 and 14.7 million Btu/hr, respectively; thus, subject to 40 CFR Part 60, NSPS, Subpart Dc.

Subpart Dc does not specify an emission limit for natural gas-fired sources. Thus; while firing natural gas (ID Nos. ES-15-1, ES-3 and ES-15-4) the facility is only required to keep fuel records.

Per 40 CFR 60.43c(c), visible emissions from boilers ES 15-1 and ES 15-3 when firing No. 2 fuel oil shall not be more than 20% opacity when averaged over a six-minute period except for one six-minute period per hour of not more than 27% opacity.

A revised condition for NSPS Subpart Dc was provide by Mr. Joe Voelker, RCO, via email on August 20, 2019:

Applicability – ONLY boilers equal to or greater than 30 million Btu/hr that combust only natural gas and distillate oil with 0.5 % fuel sulfur restriction – no site specific monitoring plan – no matter the construction date.

The revised condition was placed in the renewed permit.

- Subpart VVV—Standards of Performance for Polymeric Coating of Supporting Substrates Facilities, 40 CFR Part 60

SOURCE: 54 FR 37551, Sept. 11, 1989, unless otherwise noted.

§60.740 Applicability and designation of affected facility.

(a) The affected facility to which the provisions of this subpart apply is each coating operation and any onsite coating mix preparation equipment used to prepare coatings for the polymeric coating of supporting substrates.

(b) Any affected facility for which the amount of VOC used is less than 95 Mg per 12-month period is subject only to the requirements of §§60.744(b), 60.747(b), and 60.747(c). If the amount of VOC used is 95 Mg or greater per 12-month period, the facility is subject to all the requirements of this subpart. Once a facility has become subject to the requirements of this subpart, it will remain subject to those requirements regardless of changes in annual VOC use.

(c) This subpart applies to any affected facility for which construction, modification, or reconstruction begins after April 30, 1987, except for the facilities specified in paragraph (d) of this section.

(d) This subpart does not apply to the following:

(1) Coating mix preparation equipment used to manufacture coatings at one plant for shipment to another plant for use in an affected facility (coating operation) or for sale to another company for use in an affected facility (coating operation);

(2) Coating mix preparation equipment or coating operations during those times they are used to prepare or apply waterborne coatings so long as the VOC content of the coating does not exceed 9 percent by weight of the volatile fraction;

(3) Web coating operations that print an image on the surface of the substrate or any coating applied on the same printing line that applies the image.

- Plant 5 as currently permitted includes eleven thread bonding processes (ID Nos. ES-1 through ES-11) and associated natural gas fired curing ovens in total. This renewal with modifications proposes three thread bonding machines (ID Nos. ES-12 through ES-14) and associated electrically heated curing ovens. Refer to table below taken from review for issued Permit No. 06691T15; updated and modified for current permit and this renewal with modifications to convey NSPS, MACT and RACT applicability:

Previous ID No. (Permit No. 06691T14)	Current ID No. (as of Permit No. 06691T15)	Coating Process <sup>1,2</sup>	Previous PSD Avoidance (Permit No. 06691T14)	RACT Avoidance (as of Permit No. 06691T15)	First Operated or Date of Construction
ES1	--	Polyester thread	Removed 2005	--	1986
ESA	<b>ES-1</b>	Nylon thread		< 100 tpy VOC	<b>1986</b>
ESB	<b>ES-4</b>	Nylon thread			<b>1986</b>
ESC	ES-5	Nylon thread	<40 tpy VOC 2D .0530 <sup>3</sup>		1994
ESD	ES-6	Nylon/Polyester thread	<40 tpy VOC 2D .0531 <sup>3</sup>		1994
ESE	ES-7	Nylon/Polyester thread	<40 tpy VOC 2D .0531 <sup>4</sup>		1995
ESF	ES-8	Nylon/Polyester thread	<40 tpy VOC 2D .0531 <sup>4</sup>		1996

Previous ID No. (Permit No. 06691T14)	Current ID No. (as of Permit No. 06691T15)	Coating Process <sup>1,2</sup>	Previous PSD Avoidance (Permit No. 06691T14)	RACT Avoidance (as of Permit No. 06691T15)	First Operated or Date of Construction
ESG	ES-9	Nylon/Polyester thread	<40 tpy VOC 2D .0531 <sup>3</sup>		2001
ESH	ES-2	Nylon thread	<40 tpy VOC 2D .0530 <sup>3</sup>		2005
ESI	ES-3	Nylon/Polyester thread	<40 tpy VOC 2D .0531 <sup>5</sup>		2004
ESJ	ES-10	Nylon thread	<40 tpy VOC 2D .0531 <sup>5</sup>		2004
ESK	ES-11	Nylon/Polyester thread	<40 tpy VOC 2D .0531 <sup>5</sup>		2005
N/A	ES-12	Thread bonding line	N/A	Place under existing RACT/VOC avoidance	2018
	ES-13	Thread bonding line			2018
	ES-14	Thread bonding line			2018

<sup>1</sup> Changed references to nylon and polyester with High VOC Bonds and Low VOC Bonds for all processing lines (ID Nos. ES-1 through ES-11) during processing of issued Permit No. 06691T19

<sup>2</sup> Changes to allow processing of polyester thread on coating lines ES-1, ES-2, ES-4, ES-5 and ES-10 during processing of issued Permit No. 06691T18

<sup>3</sup> less than 40 tpy VOC PSD Avoidance limit, each, for Machines ES-2, ES-5, ES-6 and ES-9

<sup>4</sup> less than 40 tpy VOC PSD Avoidance limit for Machines ES-7 and ES-8

<sup>5</sup> less than 40 tpy VOC PSD Avoidance limit for Machines ES-3, ES-10 and ES-11

Coating operations constructed after April 30, 1987 and used to prepare coatings for the polymeric coating of supporting substrates are subject to NSPS Subpart VVV. The amount of VOC previously used was greater than >95 Mg per year (1 US ton = 0.9072 Megagrams; therefore, >104.72 tpy); thus, A&E remains subject to all requirements of Subpart VVV for the following affected sources, High and Low VOC bond thread (previously permitted as nylon and nylon/polyester) machines as indicated in the above table:

- Existing machines (ID Nos. ES-2, ES-3 and ES-5 through ES-11); and
- Proposed machines (ID Nos. ES-12 through ES-14)

The applicant has chosen to reduce VOC emissions by at least 90 percent while processing High VOC bond thread.

The applicant has chosen to use VOC less than or equal to 9% by weight of the volatile fraction while processing Low VOC bond thread to **avoid** NSPS Subpart VVV (60.740(d)(2)).

Based on the most recent inspection report [inspection date 10/28/2019 by Mr. Vanwormer, MRO] stack testing to confirm thermal oxidizer efficiency (ID No. CD-1) for compliance with 40 CFR 60 Subpart VVV and 40 CFR 63 Subpart OOOO on lines ES-2, ES-3 and ES-5 through ES-11) was performed on July 17, 2018.

Stack testing performed July 17, 2008, indicates compliance with NSPS Subpart VVV. The test demonstrated a reduction rate of **99.8%**.

Modification requests are for proposed thread bonding machines (ID No. ES-12 through ES-14), for both High and Low VOC Bond thread processing. Thus, the new machines will be subject to the same MRRR as currently permitted thread bonding machines with a Primary Operating Scenario (POS) while processing High VOC Bonds and an Alternative Operating Scenario (AOS) while processing Low VOC Bonds. No changes to existing MRRR.

- 15A NCAC 02D .0530, PREVENTION OF SIGNIFICANT DETERIORATION and 02D .0531 “Sources in Nonattainment Areas” (for VOC)

See discussion under 15A NCAC 02Q .0317, Avoidance Conditions for 15A NCAC 02D .0530 and 02D .0531 below.

- 15A NCAC 02D .0958, WORK PRACTICES FOR SOURCES OF VOLATILE ORGANIC COMPOUNDS

Effective November 1, 2016 – 15A NCAC 02D .0958 is applicable only to the following counties/areas in NC:

- Cabarrus County;
- Gaston County;
- Lincoln County;
- Mecklenburg County;
- Rowan County;
- Union County; and
- Davidson Township and Coddle Creek Township in Iredell County

These are work practice standards for VOC emissions. Compliance with this standard is expected.

- 15A NCAC 02D .1109, Case-by-Case MACT – A&E’s current permit contains Case-by-Case MACT requirements under 112(j) for the natural gas/No. 2 fuel oil-fired boilers (ID Nos. ES 15-1, ES 15-3, and ES 15-4) effective through May 19, 2019. This regulation no longer applies due to the effective date of the boiler MACT (Subpart DDDDD) of May 20, 2019 (discussed in more detail below) and will be removed from the renewed permit.



- 15A NCAC 02D .1111, Maximum Achievable Control Technology (MACT) – The facility is subject to the following MACTs:
  - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63 Subpart DDDDD (MACT Subpart DDDDD) – The Boiler MACT became effective on May 20, 2019.

§63.7490 What is the affected source of this subpart?

(a) This subpart applies to new, reconstructed, and existing affected sources as described in paragraphs (a)(1) and (2) of this section.

(1) The affected source of this subpart is the collection at a major source of all existing industrial, commercial, and institutional boilers and process heaters within a subcategory as defined in §63.7575.

(2) The affected source of this subpart is each new or reconstructed industrial, commercial, or institutional boiler or process heater, as defined in §63.7575, located at a major source.

(b) A boiler or process heater is new if you commence construction of the boiler or process heater after June 4, 2010, and you meet the applicability criteria at the time you commence construction.

(c) A boiler or process heater is reconstructed if you meet the reconstruction criteria as defined in §63.2, you commence reconstruction after June 4, 2010, and you meet the applicability criteria at the time you commence reconstruction.

(d) A boiler or process heater is existing if it is not new or reconstructed.

(e) An existing electric utility steam generating unit (EGU) that meets the applicability requirements of this subpart after the effective date of this final rule due to a change (e.g., fuel switch) is considered to be an existing source under this subpart.

[76 FR 15664, Mar. 21, 2011, as amended at 78 FR 7162, Jan. 31, 2013]

The natural gas/No. 2 fuel oil-fired boilers (ID Nos. ES 15-1, ES 15-3, and ES 15-4) will be subject to MACT Subpart DDDDD as existing affected sources, with the exception of the proposed modification for boiler #1 (ID No. ES 15-1) will change the status from an existing affected source to reconstructed as discussed below:

Subpart A – General Provisions:

§63.2 Definitions.

...

Reconstruction, unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and

(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

Per the application, Boiler #1 (ID No. ES 15-1) repairs were made in April 2015 to existing boiler #1. At the time it was not believed that the modifications had triggered reconstruction under NSPS and NESHAP regulations.

During the most recent inspection it was discovered that the reported cost of rebuild was \$188,559; cost of an equivalent boiler was \$308,412. Hence, greater than 50% per §63.2.

Per Form B, the boiler is a Cleaver-Brooks CB-200-800-150, 33.745 million Btu per hour natural gas-fired with No. 2 fuel oil backup – Gas 1 Boiler under NESHAP Subpart DDDDD. Start date of reconstruction was January 2015. Reconstructed date was April 2015. Expected operating schedule: 24 hours per day; 7 days per week; 51 weeks per year = 8,568 hours per year. Emissions are summarized in Section 5 above.

An email requesting Boiler MACT language was sent to Mr. Joe Voelker, RCO on August 15, 2019. New boiler MACT conditions were supplied via email on August 20, 2019 and September 10, 2019. The new conditions will be placed in A&E's renewed permit.

Excerpts from the most recent inspection report:

A. **Three natural gas/No. 2 fuel oil fired boilers (ES 15-1, ES 15-3, and ES 15-4)**

**Boiler 1 (ES 15-1)**

**Observed:**

The facility conducted tune-ups on this boiler on January 22, 2018 and January 16, 2019. The energy assessment was conducted on December 4, 2018.

**5. 15A NCAC 02D .1109: CAA § 112(j); Case-by-Case MACT for Boilers & Process Heaters**

**Observed:** The permittee conducted a tune-up on each boiler as shown below:

Boiler 1 (ES-15-1) – January 22-23, 2018 and January 16, 2019

Boiler 3 (ES-15-3) – March 2018 and January 11, 2019

Boiler 4 (ES-15-4) – January 22-23, 2018 and January 16, 2019

On April 2 & 3, 2020, during email exchanges with the facility, this review engineer inquired about the dates of the initial tune ups and energy assessments for all three boilers in response to questions that arose during the email exchange. Mr. Summers, RO, emailed the Notification of Compliance Status report under the Boiler MACT Rule for the subject boilers dated January 29, 2019 (excerpt below):

The facility is required to satisfy the requirements for Boiler Tune-up and Energy Assessment Work Practices by the compliance deadline of **May 20, 2019**. The following statement is intended to certify that the requirements above were met by the activities described below.

The facility conducted the required tune-up and energy assessment for the source(s) on the dates listed below:

Sources: Boiler #4 (ES 15-4) One natural gas/No. 2 fuel oil-fired boiler (14.7 million Btu per hour heat input capacity) - Gas 1 Subcategory

Boilers #1 and #3 – (ES 15-1 and ES 15-3) Two natural gas/No. 2 fuel oil-fired boilers (33.475 million Btu per hour heat input capacity each) – Both are Gas 1 Subcategory

DATES OF TUNE-UP: Boiler #1 – January 16, 2019, Boiler #3 – January 11, 2019, Boiler #4 – January 10, 2019

DATE OF ENERGY ASSESSMENT : December 4, 2018

Statements will be added to the renewed permit indicating these requirements have been met.

Compliance is indicated.

- National Emission Standards for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and Other Textiles, 40 CFR Part 63, Subpart OOOO.
- Eleven thread bonding processes and associated natural gas-fired curing ovens (ID Nos. ES-1 through ES-11).
- Three proposed thread bonding processes and associated electrically heated curing ovens (ID Nos. ES-12 through ES-14)

§63.4281 Am I subject to this subpart?

(a) Except as provided in paragraphs (c) and (d) of this section, the source category to which this subpart applies is the printing, coating, slashing, dyeing or finishing of fabric and other textiles, and it includes the subcategories listed in paragraphs (a)(1) through (3) of this section.

(1) The coating and printing subcategory includes any operation that coats or prints fabric or other textiles. Coating and printing operations are defined in §63.4371. Coated and printed substrates are used in products including, but not limited to, architectural structures, apparel, flexible hoses, hot-air balloons, lightweight liners, luggage, military fabric, rainwear, sheets, tents, threads and V-belts. The coating and printing subcategory includes any fabric or other textile web coating line that also performs coating on another substrate unless such coating is specifically excluded from this subpart by another NESHAP in this part or is exempted from the requirements of this subpart based on the criteria in paragraph (e) of this section. Web coating lines exclusively dedicated to coating or printing fabric and other textiles are subject to this subpart.

(2) The slashing subcategory ...

(3) The dyeing and finishing subcategory includes any operation that dyes or finishes a fabric or other textiles. Dyeing and finishing operations are defined in §63.4371. Dyed and finished textiles are used in a wide range of products including, but not limited to, apparel,

carpets, high-performance industrial fabrics, luggage, military fabrics, outer wear, sheets, towels, and threads.

(b) You are subject to this subpart if you own or operate a new, reconstructed, or existing affected source, as defined in §63.4282, that is a major source, is located at a major source, or is part of a major source of hazardous air pollutants (HAP). Major source is defined in §63.2 of this part.

[68 FR 32189, May 29, 2003, as amended at 69 FR 47005, Aug. 4, 2004; 71 FR 29805, May 24, 2006]

§63.4282 What parts of my plant does this subpart cover?

...

(d) The affected source for the dyeing and finishing subcategory is the collection of all of the items listed in paragraphs (d)(1) through (5) of this section that are used in dyeing and finishing operations. The regulated materials for the dyeing and finishing subcategory are the dyeing and finishing materials used in the affected source.

(1) All dyeing and finishing equipment used to apply dyeing or finishing materials, to fix dyeing materials to the substrate, to rinse the textile substrate, or to dry or cure the dyeing or finishing materials;

(2) All containers used for storage and vessels used for mixing dyeing or finishing materials;

(3) All equipment and containers used for conveying dyeing or finishing materials;

(4) All containers used for storage, and all equipment and containers used for conveying, waste materials generated by a dyeing or finishing operation; and

(5) All equipment, structures, and/or devices(s) used to convey, treat, or dispose of wastewater streams or residuals generated by a dyeing or finishing operation.

(e) An affected source is a new source if it meets the criteria in paragraph (e)(1) of this section and the criteria in either paragraph (e)(2) or (3) of this section.

(1) You commenced the construction of the source after July 11, 2002.

(2) The web coating and printing, slashing, or dyeing and finishing operation is performed at a source where no web coating and printing, slashing, or dyeing and finishing operation was previously performed.

(3) The web coating and printing, slashing, or dyeing and finishing operation is performed in a subcategory in which no web coating and printing, slashing, or dyeing and finishing operation was previously performed.

...

(f) An affected source is reconstructed if you meet the criteria as defined in §63.2.

(g) An affected source is existing if it is not new or reconstructed.

This facility is considered an existing source per 63.4282(g) under the Coating and Printing Subcategory [63.4281(a)(3) and 63.4282(d)] which includes any operation that coats or prints fabric and other textiles. A&E's initial compliance date for Subpart OOOO was by the end of three years from promulgation of the rule, May 29, 2006.

- The proposed thread bonding processes and associated ovens (ID Nos. ES-12 through ES-14), although per 63.4282 (e)(1) would be considered “new” sources, will be added as “existing” sources based on the following EPA determination:

Excerpt from review for previous Renewal (06691T15):

Per the facility's initial notification dated May 24, 2004, the following sources were deemed as:

- new affected sources:

Four thread bonding machines (**ID Nos. ESH, ESI, ESJ, and ESK**)

- existing affected sources:

Four nylon thread bonding machines (**ID Nos. ESA through ESC, and ESG**), three nylon/polyester thread bonding machines (**ID Nos. ESD, ESE, and ESF**), one polyester thread bonding machine (**ID No. ES1**) and wastewater pre-treatment plant (**ID No. ES-15-5**), and other fugitive and point emission sources.

All reference to “new” sources were removed during processing of issued Permit No. 06691T15 and the permit revised to only include applicable requirements for “existing” sources based on the following:

Per EPA's response to Ms. Dawn Reeves, American & Efird, email dated December 8, 2005 to Mr. Paul Almodovar, US EPA, regarding the definition of a “new” versus “existing” source, the following sources (ID Nos. ES-H, ES-I, ES-J and ES-K) listed in Permit No. 06691T18 as “new” will be reclassified as “existing” sources; therefore, the compliance limitations in the permit will be modified according to Table 1 to 40 CFR § 63 Subpart OOOO. Table 1 provides the emission limits for new or reconstructed and existing affected sources in the Printing, Coating and Dye of Fabrics and Other Textiles Source Category. Mr. Almodovar's email response states that “the affected source for this standard is the collection of all coating lines. If there already was an existing line at the facility, you are only adding a line to that existing collection.”

**Wastewater pre-treatment plant (ID No. ES 15-5)** - Process water from the dyeing and finishing operations is pre-treated prior to being discharged to the POTW. This source has no applicable requirements.

The facility has chosen the option of limiting organic HAP emissions by at least 97% while processing High VOC Bonds and less than or equal to 0.12 kg of organic HAP per kg of solids applied while processing Low VOC Bonds.

- National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63, Subpart ZZZZ.

Excerpt from review for most recent Renewal (06691T18):

A&E is currently permitted to operate one emergency diesel-fired fire water pump (ID No. FWP1, 205 hp, installed in 1978) that is subject to the MACT Subpart ZZZZ.

Excerpt from last two MRO Inspection Reports:

The facility has a new emergency John Deere 225 hp/450 kW hp diesel fire pump (I-FWP1) at Plant #15 that is subject to MACT Subpart 4Z and NSPS Subpart IIII. The facility submitted a letter on February 10, 2017 notifying MRO of the installation of the fire pump replacement. The engine is required to meet NSPS IIII, Tier 1 emission limits. The facility provided an EPA engine compliance certification for the new engine during the 2017 inspection. The new model year 2016 engine/pump was installed after February 9, 2017. The facility is using ultra-low sulfur diesel fuel. The engine is limited to less than 100 hours per year of non-emergency operation. Annual maintenance was conducted on December 29, 2017 and December 5, 2018 when the oil was changed. A non-resettable hour meter is on the new fire pump. The hours were not recorded during the latest inspection, but based on prior records compliance is indicated:

<u>Date</u>	<u>Meter Reading</u>
October 9, 2018	52.8 hrs
October 28, 2019	Not recorded

The certification provided during the previous inspection dated June 5, 2017 does not provide the actual size or emissions information for the engine, only a range from 225 kW to 450 kW. Based on a review of the 1998 regulation<sup>4</sup> introduced Tier 1 standards for equipment under 37 kW (50 hp) and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. By January 1, 2007 all stationary and nonroad engines had to comply with Tier 3 requirements.

An additional information request was sent to A&E requesting the fire pump size and certification for permitting purposes to complete the appropriate regulatory review. Per response to the additional information request from RO via email on December 13, 2019, certification (Attachment 1) and manufacturers' information (Attachment 2) provided indicates the engine is a 224 hp diesel-fired fire pump engine [(model year 2016), USA EPA (NSPS) Tier 3 Emissions Certified Off-Road (40 CFR Part 89) and NSPS Stationary (40 CFR Part 60 Subpart IIII)]:

Clarke Model: JU6H-UFADQ0  
Power Rating (BHP/Kw): 224 / 167  
Certified Speed (RPM): 2,100

- MACT Subpart ZZZZ

§63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

...

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

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<sup>4</sup> United States: Nonroad Diesel Engines (<http://www.dieselnet.com/standards/us/nonroad.php#tier4>)

(1) A new or reconstructed stationary RICE located at an area source; ...

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9674, Mar. 3, 2010; 75 FR 37733, June 30, 2010; 75 FR 51588, Aug. 20, 2010; 78 FR 6700, Jan. 30, 2013]

§63.6675 What definitions apply to this subpart?

*Emergency stationary RICE* means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in §63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in §63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

...

§63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

...

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(4) Emergency stationary RICE located at area sources of HAP ...  
[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6704, Jan. 30, 2013]

- NSPS Subpart IIII

§60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE ...

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines ...

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section. ...  
[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

Per information provided via email for the Clarke fire pump engines (Attachment 2) under specifications:

The engine has 6 cylinders and a displacement of 6.8 L.

The engine is USA EPA (NSPS) Tier 3 Emissions Certified Off-Road (40 CFR Part 89) and NSPS Stationary (40 CFR Part 60 Subpart IIII). Meet EU Stage IIIA emissions levels.

Units	g/kW-hr Rating Data	g/kW-hr Certificate Data
NO <sub>x</sub>	3.43	3.31
HC	0.09	0.11
NO <sub>x</sub> + HC	N/A	N/A
PM	0.11	0.10
CO	0.8	0.6



Based on the information above the replacement ICE meets the requirements of MACT Subpart ZZZZ by complying with NSPS Subpart IIII emission limits in Table 4 (See Attachment 3):

NMHC + NO<sub>x</sub> = 4.0  
PM = 0.20

Compliance is indicated since the rate and certificate emissions are less than the allowable emissions.

More discussion on the applicable MACTs is provided under Section 7.

- 15A NCAC 02Q .0317, Avoidance Conditions – The facility has accepted avoidance conditions for the following:
  - 15A NCAC 02D .0531, Sources in Nonattainment Areas for VOC.
  - 15A NCAC 02D .0902, Applicability for avoidance of RACT.

#### 02Q .0317, Avoidance Conditions for 15A NCAC 02D .0531, SOURCES IN NONATTAINMENT AREAS

As discussed above, the facility was operating under several avoidance conditions under both 02D .0530 and 02D .0531. The PSD/RACT Avoidance condition in A&E's current permit was added during issuance of renewed Title V Air Permit No. 06691T15. At that time all eleven thread bonding machines (ID Nos. ES-1 through ES-11) were consolidated under one avoidance condition that had less than 100 tpy facility-wide VOC PSD/RACT limit. The 100 tons per year limitation allowed A&E to avoid Existing Source RACT (compliance date of April 1, 2009). The consolidated VOC emissions limitation fell under 02Q .0317 for 02D .0902 applicability. As a result of the RACT avoidance condition, the facility is also not a major stationary source for PSD purposes. In an EPA determination dated December 8, 2005, as discussed under Subpart OOOO above, the collection of all coating lines is considered the affected source. All thread bonding lines are enclosed by a permanent total enclosure (PTE). In addition, when processing thread under the primary operating scenario all lines are controlled by a thermal oxidizer (TO).

The permit contained equations/formulas for calculating VOC emissions for each machine, which were replaced with the following generic equation:

$$E_{voc} = A [(1-F) + (F) (1-E)] + B$$

where, **E<sub>voc</sub>** is the emissions of VOC in pounds per month from each thread bonding machine  
**A** is the total amount of VOC used in each thread bonding machine found by multiplying the amount of each type of VOC-containing material consumed during the month by the VOC content of the material  
**B** is the amount of VOC used for cleaning each machine  
**F** is the capture efficiency [100% per June 20, 2006 approved test results]  
**E** is the control efficiency [98.9% per June 20, 2006 approved test results]

As allowed under Part 70 – Streamline Permitting, the following permitting requirements were incorporated under the RACT Avoidance in order to also exempt the facility from CAM (See CAM Section under 02D .0614 below for more details). At the time renewed permit T15 was issued the emissions cap exemption was not used since 02D .0614 did not contain the same language as 40 CFR 64 for CAM exemptions. The rule was updated (January 1, 2009) to include the exemption; thus, A&E was exempted based on enhanced monitoring for the TO (including minimum temperature based on June 20, 2006 stack test results) and parameters to be monitored for the Permanent Total Enclosure (PTE). The following continuous compliance monitoring requirements for the TO and PTE to ensure compliance with the VOC RACT Avoidance limit were incorporated into the renewed permit issued on August 15, 2008:

- appropriate monitoring, recordkeeping and reporting requirements for the thermal oxidizer (TO),
- minimum temperature and destruction efficiency for TO determined during performance testing,
- a requirement for when the oxidizer is not in operation or “deemed not in operation”, the VOC emissions shall be determined based on an uncontrolled emissions rate, assuming 0% control efficiency,
- continuous monitoring to ensure the PTE capture efficiency of 100% is met as detailed below, and
- performance testing every 5 years

Addition of the three proposed thread bonding machines under this avoidance condition does not require any changes other than updated shell guidance language and addition of the ID numbers (ID Nos. ES-12 through ES-14) of the three machines added to the permit under 502(b)(10) modifications consolidated into this renewal. The avoidance condition now will read:

“In order to avoid applicability of these regulations, the fourteen thread bonding machines (**ID Nos. ES-1 through ES-14**) shall discharge into the atmosphere less than 100 tons of VOCs per consecutive 12-month period. [15A NCAC 02D .0902, 15A NCAC 02D .0531]”

The facility will continuously monitor the tower fan speed for each machine to ensure the PTE capture efficiency of 100% is met. During stack testing performed June 20, 2006, the tower fan speeds were recorded from each machine while performing EPA Method 204. The table below indicates the average fan speed (rpm) recorded for the eleven thread bonding machines (ID Nos. ES-1 through ES-11) permitted during the performance testing taken from Appendix 2 Field Data Sheets, page 39:

Machine ID No.	Average Machine Fan Speed (rpm)
ES-1	785.7
ES-2	804.0
ES-3	864.7
ES-4	723.3
ES-5	735.3
ES-6	731.0
ES-7	782.3

Machine ID No.	Average Machine Fan Speed (rpm)
ES-8	792.7
ES-9	795.7
ES-10	788.7
ES-11	820.7

The average fan speed for the three proposed machines (ID Nos. ES-12 through ES-14) will be placed in the renewed permit based on stack testing performed on July 17, 2018 (ID No. ES-12) and manufacturers' data (ID Nos. ES-13 and ES-14) as summarized in the table below.

Machine ID No.	Average Machine Fan Speed (rpm)
ES-12	1,669.0 (July 17, 2018)
ES-13	1,600 (manufacturers' data)
ES-14	1,082 (manufacturers' data)

Fan speeds for thread bonding machines ES-13 and ES-14 will be verified once connected to the oxidizer and testing is performed (during the next periodic testing requirement).

Per current DAQ guidance the testing condition under Specific Condition 2.1.B.6.b was modified. The ability to modify the permit administratively was removed and the language modified as follows:

**Testing** [15A NCAC 02Q .0508(f)]

- b. If emissions testing is required, the Permittee shall perform such testing in accordance with General Condition JJ. If the results of this test are above the limits given in Section 2.1.B.6.a. above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0902 and 15A NCAC 02D .0531.
- c. Under the provisions of NCGS 143-215.108, the Permittee shall conduct a periodic emissions performance test to establish the proper operating temperature, capture system efficiency, and add-on control device destruction or removal efficiency. The testing shall be conducted in accordance with a testing protocol approved by the DAQ to demonstrate compliance with the emission limit in Section 2.1.B.6.a. above. Details of the emissions testing and requirements can be found in Section 3 - General Condition JJ.
- d. Periodic testing of the processes utilizing High VOC Bonds (**ID Nos. ES-1 through ES-14**) controlled by a thermal oxidizer (**ID No. CD-1**) shall be conducted once every 60 months.<sup>5</sup> If the results of this test are above the limit given in Section 2.1.B.6.a. above for

<sup>5</sup> Most recent periodic testing performed for EPA Method 25A for VOC emissions testing for CD-1 control efficiency and EPA Method 204 for capture efficiency for a permanent total enclosure (PTE) verification of nylon (High VOC bonds) thread bonding machines (ES-1 through ES-11, and ES-12) was performed by Integrity Air Monitoring Inc., July 17, 2018. Approval Memorandum dated October 2, 2018; DAQ Tracking No. 2018-120ST indicates emissions test results demonstrate compliance with the applicable regulations and the PTE evaluation as established during June 20, 2006 approved testing (A&E has not requested to change or re-establish operating parameters or efficiencies).

VOCs, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0902 and 15A NCAC 02D .0531.

- e. Compliance with previously approved parametric operating values is not required during periodic required testing or other tests undertaken to re-establish parametric operating values by the Permittee.
- f. The Permittee may re-establish any parametric operating value during periodic testing. If the new parametric operating values re-established during periodic testing are more stringent, the Permittee shall submit a request to revise the value(s) in the permit at the same time the associated test report required pursuant to General Condition JJ is submitted. The permit revision will be processed pursuant to 15A NCAC 02Q .0514. If, during periodic testing, the new parametric operating value(s) are less stringent, the Permittee may request to revise the value(s) in the permit pursuant to 15A NCAC 02Q .0515.
- g. The source shall be responsible for ensuring, within the limits of practicality, that the equipment or process being tested is operated at or near its maximum normal production rate, or at a lesser rate if specified by the Director or his delegate. The results of any testing pursuant to this paragraph shall be submitted to DAQ within 30 days of receipt by the Permittee.

No changes to the above monitoring, recordkeeping and reporting requirements, other than Title V guidance updates, as detailed above, were required for this renewal. The revised language will be placed in the renewed permit along with the addition of the three new proposed thread bonding machines.

#### 02D .0900 VOC Reasonably Available Control Technology (RACT)

In areas not in compliance with the ozone ambient air quality standards (ozone nonattainment areas), certain categories of existing major sources of VOC were required to comply with the RACT rules contained in Section 15A NCAC 2D .0900. The current permit contains an avoidance condition for RACT applicability stating that the eleven thread bonding machines (**ID Nos. ES-1 through ES-11**) shall discharge into the atmosphere less than 100 tons of VOCs per consecutive 12-month period. Other than adding the current shell guidance changes and the addition of the three proposed thread bonding machines (total is now 14 thread bonding machines), the conditions will remain the same.

#### 02Q .0512, Permit Shield for Nonapplicable Requirements

The current permit (Air Quality Permit No. 06691T19) contains a Permit Shield for Non-applicable Requirements under Section 2.3, which reads:

#### **2.3 - Permit Shield for Non-Applicable Requirements**

The Permittee is shielded from the following non-applicable requirements [15A NCAC 02Q .0512(a)(1)(B)].

- A. 15A NCAC 02D .1400, Reasonable Available Control Technology (RACT) for nitrogen oxides (NO<sub>x</sub>), is not applicable to this facility because the potential NO<sub>x</sub> emissions are less than 100 tpy due to the removal of: boilers ID Nos. B2 and ES 15-2; and the capability of burning No. 6 fuel oil, per facility's request dated February 7, 2008.
- B. 15A NCAC 02D .0524, 40 CFR Part 60 Subpart VVV, is not applicable to two (2) - thread bonding processes (**ID Nos. ES-1 and ES-4**) because the lines pre-date the NSPS regulation.
- C. 15A NCAC 02D .0951, RACT for Low VOC Bond Thread Bonding Manufacturing, is not applicable to six (6) – Low VOC Bonds thread bonding processes (**ID Nos. ES-3, ES-6 through ES-9, and ES-11**) provided the facility remains below the RACT Avoidance limit of less than 100 tpy for VOC emissions as specified in Section 2.1. B.6.
- D. 15A NCAC 02D .0955, RACT for High VOC Bond Thread Bonding Manufacturing, is not applicable to eleven (11) – High VOC Bonds thread bonding processes (**ID Nos. ES-1 through ES-11**) provided the facility remains below the RACT Avoidance limit of less than 100 tpy for VOC emissions as specified in Section 2.1. B.6.

The above requirements 2.3-C. & D. will be updated to include the new proposed thread bonding machines. In addition, all machines should be permitted for both High and Low VOC Bonds; therefore, each condition will apply to all thread bonding machines (ID Nos. ES-1 through ES-14). Condition 2.3-C. was inadvertently not updated when A & E requested that all coating lines be permitted to process both nylon thread (POS) and polyester thread (AOS) during processing of issued permit No. 06691T18.

No other changes are necessary as part of this renewal with modifications.

- 15A NCAC 02Q .0711, Emission Rates Requiring a Permit – The facility is subject for six TAPs as discussed in Section 8. No modeling is necessary for this renewal with modifications since no TAP has exceeded its respective TPER.

## **7. NSPS, NESHAPS/MACT, NSR/PSD, RACT, 112(r), CAM**

### NSPS

The facility is subject to the following New Source Performance Standards (NSPS):

#### *NSPS Subpart Dc*

The natural gas/No. 2 fuel oil-fired boilers (**ID Nos. ES 15-1, ES 15-3, and ES 15-4**) are subject to the NSPS for Small Industrial, Commercial, Institutional Steam Generating Units, 40 CFR Part 60 Subpart Dc. The applicable requirements are discussed under Section 6 above in more detail.

#### *NSPS Subpart VVV*

Coating operations (**ID Nos. ES-2, ES-3 and ES-5 through ES-14**) constructed after April 30, 1987 and used to prepare coatings for the polymeric coating of supporting substrates are

subject to NSPS Subpart VVV. The applicable requirements are discussed under Section 6 above in more detail.

#### NESHAPS/MACT

The facility is major for HAPs and is subject to the following National Emission Standards for Hazardous Air Pollutants/Maximum Achievable Control Technology (MACTs) requirements:

##### *MACT Subpart DDDDD*

The natural gas/No. 2 fuel oil-fired boilers (**ID Nos. ES 15-1, ES 15-3, and ES 15-4**) will be subject to the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers, 40 CFR Part 63 Subpart DDDDD. The requirements under MACT Subpart DDDDD are being added at this time. The applicable requirements are discussed under Section 6 above in more detail.

##### *MACT Subpart OOOO*

Printing, coating, slashing, dyeing, or finishing of fabric or other textiles at a major source of HAPs are subject to NESHAP: Printing, Coating, and Dyeing of Fabrics and Other Textiles, 40 CFR Part 63, Subpart OOOO. As specified in 40 CFR 63.4282(e), an affected source is considered new if it was constructed after July 11, 2002 at a source (or subcategory) where no web coating and printing, slashing, or dyeing and finishing operation was previously performed. Although several of the coating processes were added after July 11, 2002, these are not considered new emissions sources because A&E was considered to be adding lines to an existing collection of sources. Thus, all coating processes (**ID No. ES-1 through ES-11**) and proposed coating processes (**ID No. ES-12 through ES-14**) are considered to be existing under MACT Subpart OOOO.

A&E has elected to comply with different emission limits under the POS and AOS for the coating lines. The facility must reduce organic HAP emissions to the atmosphere by achieving at least a 97 percent organic HAP overall control efficiency while processing nylon thread (POS) for each of these lines. A&E must limit organic HAP emissions to the atmosphere to no more than 0.12 kg of organic HAP per kg of solids applied while processing polyester threads (AOS) for each of these lines.

The applicable requirements are discussed under Section 6 above in more detail.

#### RACT

Facilities located in Gaston County with a potential to emit 100 or more tons per year of VOC were subject to RACT requirements. The area is now in compliance with the 1997 ozone standard and is now considered a maintenance area. The requested changes will have no effect on the current RACT conditions in the permit.

Previously facilities located in Gaston County with a PTE of 100 or more tpy of VOC were subject to RACT requirements. With the issuance of Air Permit No. 06691T15 on August 15, 2008, A&E accepted a facility-wide 100 tpy limit on VOCs to avoid RACT. Although Gaston County is now considered a maintenance area, the RACT avoidance limit remains because the restriction is being used to bring the area back into attainment.

To assure compliance with this less than 100 tpy VOC avoidance condition, NSPS Subpart VVV (>90%) and MACT Subpart OOOO; the facility is required to maintain the temperature of the thermal oxidizer (TO) at or above 1462 °F to ensure a destruction efficiency (DE) of 98.9% as determined per the June 20, 2006 source test. In addition, the facility must demonstrate compliance with the capture efficiency of 100% for the permanent total enclosure per EPA Method 204. The facility must also conduct testing every five years to verify the destruction efficiency. The facility is also required to calculate monthly emissions of VOC, conduct inspection and maintenance on the oxidizer, and conduct monitoring, recordkeeping and reporting.

The thermal oxidizer (TO) was last tested on July 17, 2018 (DAQ Tracking No. 2018-120ST). The testing results were approved by Mr. Brent Hall of the Stationary Source Compliance Branch (SSCB) in a memorandum dated October 2, 2018. The results indicate a 99.8% VOC destruction efficiency during testing and verified the destruction efficiency measured during the 2006 testing. Per the memorandum TO (**ID No. CD-1**) controls emissions from twelve nylon thread bonding machines (**ID Nos. ES-1 through ES-11, and ES-12**) and associated natural gas-fired curing ovens. Machine #12, one of the three proposed thread bonding machines was included during testing. The remaining two proposed thread bonding machines (**ID Nos. ES-13 and ES-14**) will be included during the next testing period as discussed under Section 6 above.

#### NSR/PSD/INCREMENT

A&E is located in Gaston County. This area was designated a non-attainment area for the 1997 8-hr ozone standard on April 15, 2004. Effective June 15, 2004, the non-attainment area new source review (NAA/NSR) rule applied in this area for any new major source or a major modification to an existing major source. Note that Gaston County was re-designated to attainment for the 2008 ozone standard in July 2015. As a result, Gaston County is considered in attainment with the ozone standard. Since the area was declared a maintenance area and in attainment on July 28, 2015, the PSD rules now apply and not the NAA/NSR rules. The existing limitation for RACT avoidance remains to ensure the county continues to be in attainment.

The minor source baseline dates for particulate matter (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and nitrogen oxides (NO<sub>x</sub>) have been triggered for Gaston County. Based on potential emissions from the proposed thread bonding machines (electrically heated) and reconstructed boiler, there are no changes for PM<sub>10</sub>, SO<sub>2</sub> or NO<sub>x</sub>; thus, increment is not consumed or expanded. Hence, emission tracking for PSD Class II increment purposes is not required.

#### 112(r)

The facility is not subject to Section 112(r) "Prevention of Accidental Releases" program of the Clean Air Act (CAA) requirements. Per Form A2/A3 – Emission Source Listing for this Application – A2; 112r Applicability Information because it does not store any of the regulated substances in quantities above the thresholds in 112(r).

This permit renewal with modifications does not affect the 112(r) status of the facility.

## CAM

15A NCAC 02D .0614 [40 CFR Part 64] COMPLIANCE ASSURANCE MONITORING (CAM) – A re-evaluation of Compliance Assurance Monitoring (CAM) (40 CFR Part 64) determination is required for this renewal process because:

- ✓ the facility is a Title V facility with potential emissions that exceed the Title V major source levels without considering controls; and
- ✓ there are sources subject to an emission limitation or standard that require controls in order to comply with the emission limitation.

40 CFR 64 requires that a CAM plan be developed for all equipment located at a major facility, that have ***pre-controlled emissions above the major source threshold***, and use a control device to meet an applicable standard. CAM applicability was previously established under the renewal permits T15 & T18; however, as part of this renewal, CAM must be reevaluated since the pollutant-specific emissions unit (PSEU) was modified to include three new thread bonding machines. Per 02D .0614(a) the PSEU satisfies all of the following criteria:

- the unit is subject to an emission limitation or standard for the applicable regulated pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under Subparagraph (b)(1) of this Rule (non-exempt: e.g. pre November 15, 1990, Section 111 or Section 112 standard);
- the unit uses a control device to achieve compliance with any such emission limitation or standard; and
- the unit has potential pre-control emissions of the applicable air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., rate exceeds either 100 tpy for criteria pollutants or 10/25 tpy for HAPs).

“Potential pre-control device emissions” means the same as “potential to emit,” as defined in 15A NCAC 02Q .0103, except that emission reductions achieved by the applicable control device shall not be taken into account. VOC and HAP are the only pollutants with PTE above major source thresholds. The largest HAPs emitted are methanol and triethylamine, both of which are a VOC and HAP. Actual HAP emissions are below major source thresholds. VOC emissions are summarized below from applications submitted for this renewal and consolidated modifications:

<b>Worse-case VOC Emissions</b>	<b>tons per year (tpy) per machine</b>
Potential uncontrolled High VOC Bonds	239.1
Potential uncontrolled Low VOC Bonds	12.9
Potential controlled High VOC Bonds	0.48
Expected actual High VOC Bonds	0.38
Expected actual Low VOC Bonds <sup>1</sup>	10.24

<sup>1</sup>Emissions from Low VOC Bonds are not controlled. The total emissions from the facility are limited to 100 tons VOC per year; these values represent a worst case.

Emissions from the thread bonding processes are controlled with a natural gas-fired TO (**ID No. CD-1**) enclosed by a permanent total enclosure. These emission sources are exempt from CAM based on the following:



- The thread bonding processes are controlled and subject to emission limitations and/or standards, as noted previously. The TO is used for compliance with NSPS Subpart VVV (proposed April 30, 1987) and MACT Subpart OOOO (proposed July 11, 2002; thus, after November 15, 1990 and exempt) making these emission sources exempt from CAM [02D .0614(b)(1)(A)].
- The three boilers do not have controls [02D .0614(a)(2)] and are subject to MACT Subpart DDDDD (proposed January 1, 2003; thus, after November 15, 1990 and exempt) making these emission sources exempt from CAM [02D .0614(b)(1)(A)]

The facility also qualifies for an exemption under 15A NCAC 02D .0614 because the TO is used to meet an emission cap [02D .0614(b)(1)(E)] approved under 15ANCAC 02Q and incorporated in the facility's permit under 15A NCAC 02Q .0500 Title V Procedures. Under Title 40 Protection of Environment, Part 70 – State Operating Permit Programs, § 70.2 definitions – “*Emissions allowable under the permit* means a federally enforceable permit term or condition determined at issuance to be required by an applicable requirement that establishes an emissions limit (including a work practice standard) or a federally enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.”

Specifically, the oxidizer ensures the facility maintains VOC emissions below 100 tpy in avoidance of RACT. Therefore, the facility is exempt from CAM and no further review is required during processing of this renewal with modifications. Language referencing avoidance of CAM was removed from the permit during processing of the previous renewal (issued Permit No. 06691T18).

## 8. Facility Wide Air Toxics

A&E first triggered an air toxics review under Air Permit No. 06691T10 issued on October 11, 2004. The facility added a new nylon/polyester thread bonding process and associated natural gas fired curing oven under that permit. As required, the facility conducted a facility-wide emissions review for five air toxics air pollutants that exhibited a net increase in emissions due to the addition of the new thread bonding process. These pollutants were benzene, formaldehyde, benzo (a) pyrene, hexane, and toluene. The facility-wide emissions for each of these pollutants were well below the respective Toxics Permitting Emission Rate (TPER) and a condition for 15A NCAC 02Q .0711 was added to the permit.

This condition was revised to include the TAP, aziridine, under Air Permit No. 06691T11 issued on November 4, 2004. The permit was issued as a 502(b)(10)/state-only toxics modification to modify an existing bonding machine to process an additional substrate.

Several additions/modifications to the thread bonding operations have occurred since these TAPs were added to the permit. When required, emissions of these TAPs were evaluated and shown to remain below their respective TPERs. During the most recent renewal (issued Air Permit No. 06691T18), the condition for 15A NCAC 02Q .0711 was removed from the permit. However, 02Q .0711 was inadvertently never removed from the table of applicable rules.

The addition of three new thread bonding machines, triggers an evaluation of these six TAPs – aziridine, benzene, formaldehyde, benzo (a) pyrene, hexane, and toluene. Although they are emitted from sources subject to MACT standards, DAQ is required to perform an evaluation based on health risks. North Carolina G.S. 143-215.107(a) exempts such emission sources from NC air toxics regulations provided their emissions do not “present an unacceptable risk to human health,” in accordance with G.S. 143-215. 107(b). As part of this permit renewal, DAQ evaluated the TAP emissions to determine if they pose an unacceptable risk to human health.

Based on the most recent two years emissions inventories (EI) these TAPs are well below their respective TPERs. Per Form B of the applications submitted for the three proposed thread bonding machines no TAPs are expected. The DAQ has determined that these TAPs present no unacceptable risk to human health because they have never exceeded their respective TPERs.

It should be noted that the facility emits other TAPs from combustion sources that have never triggered into NC Air Toxics. These MACT affected sources were not considered as part of DAQ’s evaluation.

As mentioned above, the condition for 15A NCAC 02Q .0711 (TPER table) previously found in Section 2.2.D. – Multiple Emissions Sources was removed from A&E’s renewed permit No. 06691T18. However, reference to 2.2.D Control of Toxic Air Pollutants – emission rates requiring a permit; State Enforceable Only was inadvertently left in the table of applicable regulations. This reference will be removed during processing of this permit renewal.

## **9. Facility Emissions Review**

Please refer to the summary table at the beginning of this review for the last five (5) years of actual EI data for criteria pollutants and HAPs as reported by A&E and approved by the MRO.

Potential emissions of VOC increase under the proposed modifications as summarized under Section 7. A&E will remain subject to a less than 100 tpy avoidance condition for VOC. In addition, the expected increase in VOC emissions associated with the proposed modifications is less than 16 tons VOC as summarized in Section 6. Based on the most recent two years (including 2018) emissions inventory (EI) actual emissions of VOC have been less than 65 tpy; thus, compliance is expected.

## **10. Public Notice/EPA and Affected State(s) Review**

A notice of the DRAFT Title V Permit was made pursuant to 15A NCAC 02Q .0521. The notice was provided for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA had a concurrent 45-day review period. Copies of the public notice was sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit was provided to EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit was provided to each affected State at or before the time notice was provided to the public under 02Q

.0521 above. The State of South Carolina and the Mecklenburg County Local Program are considered affected state/local programs within 50 miles of the facility.

The following comments were received:

**XXXX** comments were received during public notice period.

## **11. Conclusions/Recommendations**

### Professional Engineering Seal

Pursuant to 15A NCAC 2Q .0112 “Application Requiring A Professional Engineering Seal (PE Seal),” a PE Seal is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in Rule .0103 of this Section that involve:

- (1) design;
- (2) determination of applicability and appropriateness;
- (3) or determination and interpretation of performance; of air pollution capture and control systems.

A PE Seal was not required for this renewal with permit modifications.

### Zoning Consistency Determination

A consistency determination was not required for this renewal with permit modifications pursuant to 15A NCAC 2Q .0507(d) due to addition of the proposed sources. A zoning consistency determination is required if the modification is considered an expansion.



Minor Modifications: Addition of the thread bonding machines were not considered an expansion due to the existing lines and did not require a zoning determination.

Significant Modification: The boiler was an existing source that was reconstructed, the Division does not consider this an expansion.

MRO was presented with a DRAFT permit prior to notice and recommends issuance of the permit.

RCO concurs with MRO’s recommendation to issue Air Quality Permit No. 06991T20.

# Attachment 1

	<p align="center"><b>UNITED STATES ENVIRONMENTAL PROTECTION AGENCY</b>  <b>2016 MODEL YEAR</b>  <b>CERTIFICATE OF CONFORMITY</b>  <b>WITH THE CLEAN AIR ACT</b></p>	<p align="center"><b>OFFICE OF TRANSPORTATION  AND AIR QUALITY</b>  ANN ARBOR, MICHIGAN 48105</p>
<p><b>Certificate Issued To:</b> Deere &amp; Company  (U.S. Manufacturer or Importer)  <b>Certificate Number:</b> GJDXL13.5103-008</p>	<p><b>Effective Date:</b>  07/24/2015  <b>Expiration Date:</b>  12/31/2016</p>	 Byron J. Bunker, Division Director Compliance Division
<p><b>Model Year:</b> 2016  <b>Manufacturer Type:</b> Original Engine Manufacturer  <b>Engine Family:</b> GJDXL13.5103</p>	<p><b>Mobile/Stationary Indicator:</b> Stationary  <b>Emissions Power Category:</b> 225&lt;-kW&lt;450  <b>Fuel Type:</b> Diesel  <b>After Treatment Devices:</b> No After Treatment Devices Installed  <b>Non-after Treatment Devices:</b> Electronic Control, Stroke Puff Limiter, Electronic/Electric EGR - Cooled, Engine Design Modification, Non-standard Non-After Treatment Device Installed</p>	<p><b>Issue Date:</b>  07/24/2015  <b>Revision Date:</b>  N/A</p>

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in these provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR, Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

The actual engine power may lie outside the limits of the Emissions Power Category shown above. See the certificate application for details.

## Attachment 2

# CLARKE<sup>®</sup>

FIRE PUMP ENGINES

JOHN DEERE  
POWERTECH  
FUEL INJECTION  
TURBOCHARGER

JOHN DEERE  
POWERTECH  
FUEL INJECTION  
TURBOCHARGER

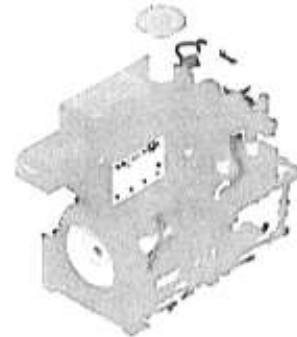
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**MODELS**

JOHN DEERE  
POWERTECH  
FUEL INJECTION  
TURBOCHARGER

### FM-UL-cUL APPROVED RATINGS BHP/KW

Model	RATED SPEED				Exhaust (CFM) (L/min)
	1750	2100	2350	2500	
UFADMG		175	131	175	131
UFAD58	183	137			No Expiration
UFADNG	190	142	181	135	183
UFADN0	197	147	187	147	200
UFADP0		208	156	211	157
UFADP8	220	164			No Expiration
UFADQ0		224	167	226	169
UFAD88	237	177			No Expiration
UFADR0		238	177.5	240	179
UFADR8	250	187			No Expiration
UFAD88	260	194			No Expiration
UFAD90		260	194	268	200
UFADT0		274	204	275	205
UFADW8	282	211			No Expiration
UFADX8	305	227.5			No Expiration
UFAD98	315	235			No Expiration



Picture represents John Deere Power Tech Plus Engine Series

• USA EPA (NEPS) Tier 3 Emissions Certified Off-Road (40 CFR Part 89) and NEPS Stationary (40 CFR Part 60 Sub Part B), Meet EU Stage IIA emission levels.

• All Models available for Export

### SPECIFICATIONS

JOHN DEERE													
Model	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS	NEPS
Number of Cylinders	5												
Aspiration	TRWA												
Rotation*	CW												
Overall Dimensions – in. (mm)	59.8 (1519) H x 56.7 (1444) L x 36.7 (933) W						60.9 (1547) H x 58.6 (1488) L x 40.0 (1015) W						
Crankshaft Centerline Height – in. (mm)	14 (356)												
Weight – lb (kg)	1747 (791)												
Compression Ratio	15.0:1						17.0:1						
Displacement – cu. in. (L)	418 (6.8)												
Engine Type	4 Stroke Cycle – Inline Construction												
Bore & Stroke – in. (mm)	4.19 x 5.09 (104 x 127)												
Installation Drawing	D628												
Wiring Diagram AC	C07951												
Wiring Diagram DC	C071357, C072146, C071361						C071368, C072146, C071761						
Engine Series	John Deere 6068 Series Power Tech E						John Deere 6068 Series Power Tech Plus						
Speed Interpolation	N/A												

Abbreviations: CW – Clockwise TRWA – Turbocharged with Raw Water Aftercooling N/A – Not Available L – Length W – Width H – Height

\*Rotation viewed from Heat Exchanger / Front of engine

#### CERTIFIED POWER RATING

- Each engine is factory tested to verify power and performance.
- FM-UL power ratings are shown at specific speeds. Clarke engines can be applied at a single rated RPM setting ± 50 RPM.



#### ENGINE RATINGS BASELINES

- Engines are to be used for stationary emergency standby fire pump service only. Engines are to be tested in accordance with NFPA 25.
- Engines are rated at standard SAE conditions of 29.81 in. (762.1 mm) Hg barometer and 77°F (25°C) inlet air temperature (approximate 300 ft. (91.4 m) above sea level) by the testing laboratory (see SAE Standard J 1349).
- A deduction of 3 percent from engine horsepower rating at standard SAE conditions shall be made for diesel engines for each 1000 ft. (305 m) altitude above 300 ft. (91.4 m).
- A deduction of 1 percent from engine horsepower rating as corrected to standard SAE conditions shall be made for diesel engines for every 10°F (5.6°C) above 77°F (25°C) ambient temperature.

## INSTALLATION &amp; OPERATION DATA (I&amp;O Data)

USA Produced

## Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - in (mm)	4.19 (106) X 5 (127)
Displacement - in <sup>3</sup> (L)	415 (6.8)
Compression Ratio	17.0:1
Valves per cylinder	
Intake	1
Exhaust	1
Combustion System	Direct Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Electronic, High Pressure Common Rail
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	Raw Water
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D628
Weight - lb (kg)	1747 (792)

## Power Rating

	<b>2100</b>	<b>2350</b>	<b>2400</b>
Nameplate Power - HP (kW) <sup>1/1</sup>	224 (167)	226 (169)	226 (169)

## Cooling System - IC051388

	<b>2100</b>	<b>2350</b>	<b>2400</b>
Engine Coolant Heat - Btu/sec (kW)	145 (153)	135 (142)	135 (142)
Engine Radiated Heat - Btu/sec (kW)	16.1 (17)	16.2 (17.1)	16.2 (17.1)
Heat Exchanger Minimum Flow			
80°F (15°C) Raw H <sub>2</sub> O - gal/min (L/min)	22 (83.3)	21 (79.5)	21 (79.5)
100°F (37°C) Raw H <sub>2</sub> O - gal/min (L/min)	34 (129)	34 (129)	34 (129)
Heat Exchanger Maximum Cooling Raw Water			
Inlet Pressure - psi (bar)	80 (4.1)		
Flow - gal/min (L/min)	40 (151)		
Typical Engine H <sub>2</sub> O Operating Temp - °F (°C)	180 (82.2) - 195 (90.6)		
Thermostat			
Start to Open - °F (°C)	180 (82.2)		
Fully Opened - °F (°C)	203 (95)		
Engine Coolant Capacity - qt (L)	22.2 (21)		
Coolant Pressure Cap - lb/in <sup>2</sup> (kPa)	15 (103)		
Maximum Engine Coolant Temperature - °F (°C)	230 (110)		
Minimum Engine Coolant Temperature - °F (°C)	160 (71.1)		
High Coolant Temp Alarm Switch - °F (°C)	236 (113) - 241 (116)		

## Electric System - DC

	<b>Standard</b>		<b>Optional</b>	
System Voltage (Nominal)	12		24	
Battery Capacity for Ambient Above 32°F (0°C)				
Voltage (Nominal)	12	(C07633)	24	(C07633)
Qty. Per Battery Bank	1		2	
SAE size per J537	8D		8D	
CCA @ 0°F (-18°C)	1400		1400	
Reserve Capacity - Minutes	430		430	
Battery Cable Circuit, Max Resistance - ohm	0.0012		0.0012	
Battery Cable Minimum Size				
0-120 in. Circuit Length <sup>2/3</sup>	00		00	
121-160 in. Circuit Length <sup>2/3</sup>	000		000	
161-200 in. Circuit Length <sup>2/3</sup>	0000		0000	
Charging Alternator Maximum Output - Amp	40	(C071363)	55	(C071365)
Starter Cranking Amps, Rolling - @60°F (15°C)	440	(RE88704/RE70404)	250	(C07819/C07820)

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. <sup>1</sup>Derate 3% per every 1000 ft. (304.8 m) above 300 ft. (91.4 m) and derate 1% for every 10 °F (5.55 °C) above 77° (25°C). <sup>2/3</sup>Positive and Negative Cables Combined Length.

## Rating Specific Emissions Data - John Deere Power Systems



**JOHN DEERE**

### Complete Rating Information

Clarke Model	JUGH-UFADQ0
Power Rating (HP / kW)	224 / 167
Certified Speed (RPM)	2100

### Rating Data

Rating	6068HFC48B	
Certified Power (kW)	236	
Rated Speed	2400	
Vehicle Model Number	Clarke Fire Pump	
Unit	g/kW-hr	g/hp-hr
NOx	3.43	2.56
HC	0.09	0.07
NOx + HC	N/A	N/A
PM	0.11	0.08
CO	0.8	0.6

### Certification Data

Engine Model Year	2016
EPA Family Name	GJDXL13.5103
EPA ID Name	650HAA
EPA Certificate Number	GJDXL13.5103-008
CARB Executive Order	Not Applicable
Parent of Family	6135HF485A

Unit	g/kW-hr
NOx	3.31
HC	0.11
NOx + HC	N/A
PM	0.10
CO	0.6

\* The emission data listed is measured from a laboratory test engine according to the test procedures of 40 CFR 89 or 40 CFR 1039, as applicable. The test engine is intended to represent nominal production hardware, and we do not guarantee that every production engine will have identical test results. The family parent data represents multiple ratings and this data may have been collected at a different engine speed and load. Emission results may vary due to engine manufacturing tolerances, engine operating conditions, fuels used, or other conditions beyond our control.

This information is property of Deere & Company. It is provided solely for the purpose of obtaining certification or permits of Deere powered equipment. Unauthorized distribution of this information is prohibited.

JDPS 1/21/2016

## Attachment 3

**Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines**

[As stated in §§60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

Maximum engine power	Model year(s)	NMHC + NO <sub>x</sub>	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	2011 +	7.5 (5.6)		0.40 (0.30)
8≤KW<19 (11≤HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	2011 +	7.5 (5.6)		0.40 (0.30)
19≤KW<37 (25≤HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	2011 +	7.5 (5.6)		0.30 (0.22)
37≤KW<56 (50≤HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011 + <sup>1</sup>	4.7 (3.5)		0.40 (0.30)
56≤KW<75 (75≤HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011 + <sup>1</sup>	4.7 (3.5)		0.40 (0.30)
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010 + <sup>2</sup>	4.0 (3.0)		0.30 (0.22)
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009 + <sup>3</sup>	4.0 (3.0)		0.20 (0.15)
225≤KW<450 (300≤HP<600)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009 + <sup>3</sup>	4.0 (3.0)		0.20 (0.15)
450≤KW≤560 (600≤HP≤750)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009 +	4.0 (3.0)		0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2008 +	6.4 (4.8)		0.20 (0.15)

<sup>1</sup>For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

<sup>2</sup>For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

<sup>3</sup>In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.